



Gregory Denton  
<Gregory.Denton@state.tn.us>  
>

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To "Paul.Estill Davis" <Paul.Estill.Davis@state.tn.us>

cc Alan Leiserson <Alan.Leiserson@state.tn.us>, David  
Draughon <David.Draughon@state.tn.us>, Patrick Parker  
<Patrick.Parker@state.tn.us>

bcc

Subject Availability of Second Draft of Water Quality Criteria  
Revisions

Dear Reviewer-

You are receiving this group message due to your previous participation in public hearings to discuss clean water goals for Tennessee.

The Department of Environment and Conservation today made two draft documents available to the public. Both are posted on the TDEC webpage (links below):

1. A draft set of proposed responses to public comments about Tennessee's revisions to water quality standards.

[http://state.tn.us/environment/wpc/publications/WQS\\_DraftPropResp06.pdf](http://state.tn.us/environment/wpc/publications/WQS_DraftPropResp06.pdf)

2. A second draft of proposed revisions to Chapter 1200-4-3.

[http://state.tn.us/environment/wpc/publications/1200\\_04\\_03\\_2nd\\_draft.pdf](http://state.tn.us/environment/wpc/publications/1200_04_03_2nd_draft.pdf)

It is our intention to ask the Tennessee Water Quality Control Board to consider a set of rulemaking hearing rules at their July 25 meeting.

If you have any questions about this information, please respond to this email, or call me at (615) 532-0699.



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WQA/TN/TRI REV V:00000057

TRIENNIAL REVIEW

STATE SUBMITTED: 6/20/07 PUBLIC HEARING DATE:1/3,5,9,10,11,12&1  
3.17 9/12/06 EMAIL RE COMMENTS ON DIVISION COMMENTS





STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

**Public Notice**

The Department of Environment and Conservation developed two documents related to the current triennial review of water quality standards, which were posted on the Department's website on July 13, 2006. The first public document is a revised version of the rule to be proposed to the Board (available at the link below):

[http://www.state.tn.us/environment/wpc/publications/1200\\_04\\_03\\_2nd\\_draft.pdf](http://www.state.tn.us/environment/wpc/publications/1200_04_03_2nd_draft.pdf)

The second document is a set of proposed responses to the public comments received so far:

[http://www.state.tn.us/environment/wpc/publications/WQS\\_DraftPropResp06.pdf](http://www.state.tn.us/environment/wpc/publications/WQS_DraftPropResp06.pdf)

At the July 25<sup>th</sup> Water Quality Control Board meeting, Board member Eddie Floyd requested a postponement of consideration of the Rulemaking Hearing Rules for Chapter 1200-4-3 and 1200-4-4. After a short discussion, the Board unanimously voted to delay action on the rules until the board's regularly scheduled meeting in September.

During this additional consideration period, staff will be available to discuss the latest version of the proposed revisions with any and all interested parties. Written comments can also be submitted.

Questions, comments, or requests for meetings should be directed to:

Greg Denton  
Tennessee Department of Environment and Conservation  
Division of Water Pollution Control  
7<sup>th</sup> Floor, L&C Annex  
401 Church Street  
Nashville, TN 37243-1534

[gregory.denton@state.tn.us](mailto:gregory.denton@state.tn.us)

(615) 532-0699



2nd draft of  
proposed changes  
to 1200-4-3

### **IMPORTANT NOTE:**

The Department of Environment and Conservation has provided the following document as a means to assist public participation in the triennial review of water quality standards. Development of any regulation, including the General Water Quality Criteria (1200-4-3) and the Stream-use Classifications for Surface Waters (1200-4-4), is governed by the Tennessee Uniform Administrative Procedures Act.

While it is the department's hope that public participation will continue in the development of clean water goals, release of this document should not be taken to represent a reopening of the formal public comment period. Additionally, the rulemaking hearing before the Tennessee Water Quality Control Board is not a public hearing on these rules pursuant to the Uniform Administrative Procedures Act 4-5-201 et. seq. However, the Water Quality Control Board may, at its discretion, allow attendees at the meeting to speak concerning the proposed changes.

The department reserves the right to make revisions to these documents prior to the rulemaking hearing.

Questions about this process can be directed to Greg Denton at (615) 532-0699 or [Gregory.denton@state.tn.us](mailto:Gregory.denton@state.tn.us)

(Rule 1200-4-3-.02, continued)

RULES  
OF  
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
TENNESSEE WATER QUALITY CONTROL BOARD  
DIVISION OF WATER POLLUTION CONTROL

CHAPTER 1200-4-3  
GENERAL WATER QUALITY CRITERIA

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**1200-4-3-.01 TENNESSEE WATER QUALITY CONTROL BOARD.**

The Water Quality Control Act, T.C.A., §69-3-101, et seq., makes it the duty of the Water Quality Control Board to study and investigate all problems concerned with the pollution of the Waters of the State and with its prevention, abatement, and control; and to establish such standards of quality for any Waters of the State in relation to their reasonable and necessary use as the Board shall deem to be in the public interest; and establish general policies relating to pollution as the Board shall deem necessary to accomplish the purposes of the Act. The following general considerations and criteria shall be used to determine the permissible conditions of waters with respect to pollution and preventative or corrective measures required to control pollution in various waters or in different sections of the same waters.

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule certified June 7, 1974. Amendment filed December 1, 1975; effective December 30, 1975. Amendment filed November 25, 1977; effective December 26, 1977. Amendment filed March 30, 1983; effective April 29, 1983. Amendment filed July 16, 1991; effective August 30, 1991. Amendment filed May 16, 1995; effective July 30, 1995. Amendment filed July 13, 1999; effective October 11, 1999. Amendment filed October 24, 2003; effective January 7, 2004.

**1200-4-3-.02 GENERAL CONSIDERATIONS.**

- (1) Tennessee water quality standards shall consist of the General Water Quality Criteria and the Antidegradation Statement found in Rule 1200-4-3, and the Use Classifications for Surface Waters found in Rule 1200-4-4.
- (2) Waters have many uses which in the public interest are reasonable and necessary. Such uses include: sources of water supply for domestic and industrial purposes; propagation and maintenance of fish and other aquatic life; recreation in and on the waters including the safe consumption of fish and shellfish; livestock watering and irrigation; navigation; generation of power; propagation and maintenance of wildlife; and the enjoyment of scenic and aesthetic qualities of waters.
- (3) The rigid application of uniform water quality is not desirable or reasonable because of the varying uses of such waters. The assimilative capacity of a stream for sewage and waste varies depending upon various factors and including the following: volume of flow, depth of channel, the presence of falls or rapids, rate of flow, temperature, natural characteristics, and the nature of the stream. ~~Also, the relative importance assigned to each use will differ for different waters and sections of waters.~~

(Rule 1200-4-3-.02, continued)

- (4) In order to permit the reasonable and necessary uses of the Waters of the State, existing pollution should be corrected as rapidly as practicable, and future pollution prevented through the best available technology economically achievable or that greater level of technology necessary to meet water quality standards; i.e., modeling and stream survey assessments, treatment plants or other control measures.
- (5) Since all Waters of the State are classified for more than one use, the most stringent criteria will be applicable. In cases where criteria for protection of more than one use apply at different stream flows (e.g., aquatic life versus recreation), the most protective stringent criteria will also be applicable.
- (6) Waters identified as wet weather conveyances according to the definition found in 1200-4-3-.04 (4), shall be protective of humans and wildlife that may come in contact with them and shall not ~~degrade or~~ adversely affect the quality of downstream waters. Applicable water quality standards will be maintained downstream of wet weather conveyances.
- (7) Where ~~Some~~ general water quality criteria are ~~will be~~ applied on a regional, ecoregional, or subecoregional basis, ~~These~~ criteria will be considered to apply to a stream if eighty percent of its watershed or catchment is contained within the unit upon which the criterion is based.
- ~~(8)~~ All fish and aquatic life metals criteria are expressed as total recoverable, except cadmium, copper, lead, nickel, silver, and zinc which are expressed as dissolved. Translators will be used to convert the dissolved fraction into a total recoverable permit limit. One of three approaches to metals translation will be used: (1) translator is the same as the conversion factor, (2) translator is based on relationships derived from STORET data, (3) a site-specific translator is developed. Where available, a site-specific translator is preferred. For assessing whether criteria for cadmium, copper, lead, nickel, silver, and zinc are exceeded by ambient water quality conditions, the dissolved criteria will also be translated in order to allow direct comparison to the ambient data, if total recoverable.
- (9) Site-specific criteria studies may be conducted on any appropriate fish and aquatic life criteria.
  - a. Site-specific criteria studies based on a Water Effects Ratio (WER) calculated from the documented toxicity of a parameter in the stream in which it will be introduced may supersede the adopted criteria at a site. be conducted on any appropriate fish and aquatic life criteria. When the Division develops or approves site specific criteria, the Water Effects Ratio (WER) methodology study which is parameter substance specific, for any substances for which generally applicable criteria have been adopted, the site specific criteria will supersede the adopted criteria at that location, specific criteria developed by others provided that an appropriate methodology is used and that both the study plan and results are approved. The Division shall approve a site-specific criteria developed by others provided that the WER methodology [Interim Guidance on Determination and Use of Water-effect Ratios for Metals (EPA-823-B-94-001)] is used, both the study plan and results are approved by the department, and the U.S. Environmental Protection Agency has concurred with the final site specific criterion value(s).
  - b. Any site specific criterion based on methodologies other than the WER methodology which recalculate specific criterion, such as the Resident Species Method or the Recalculation Method, must be adopted as a revision to Tennessee water quality standards into Chapter 1200-4-3, and following EPA approval, can be used for Clean Water Act purposes.

References on this subject include, but are not limited to: Technical Support Document for Water Quality-based Toxics Control (EPA - 505/2-90-001); Technical Guidance Manual for Performing Waste Load Allocations: Book VIII (EPA/600/6-85/002a/002b/002c); MinteqA2, An Equilibrium Metal Speciation Model (EPA/600/3-87/012); Water Quality Standards Handbook, Second Edition (EPA-823-B-93-002); The Metals Translator: Guidance for Calculating a Total Recoverable Permit

(Rule 1200-4-3-.02, continued)

Limit From a Dissolved Criteria (EPA-823-B-96-007), Interim Guidance on Determination and Use of Water-effect Ratios for Metals (EPA-823-B-94-001).

**(10.9)** Interpretation and application of narrative criteria shall be based on available scientific literature and EPA guidance and regulations.

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule certified June 7, 1974. Amendment filed December 1, 1975; effective December 30, 1975. Amendment filed November 25, 1977; effective December 26, 1977. Amendment filed March 30, 1983; effective April 29, 1983. Amendment filed July 16, 1991; effective August 30, 1991. Amendment filed May 16, 1995; effective July 30, 1995. Amendment filed July 13, 1999; effective October 11, 1999. Amendment filed October 24, 2003; effective January 7, 2004.

#### 1200-4-3-.03 CRITERIA FOR WATER USES.

(1) Domestic Water Supply.

- (a) Dissolved Oxygen - There shall always be sufficient dissolved oxygen present to prevent odors of decomposition and other offensive conditions.
- (b) pH - The pH value shall lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24 hours.
- (c) Hardness or Mineral Compounds - The hardness of or the mineral compounds contained in the water shall not appreciably impair the usefulness of the water as a source of domestic water supply.
- (d) Total Dissolved Solids - The total dissolved solids shall at no time exceed 500 mg/l.
- (e) Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character as may impair the usefulness of the water as a source of domestic water supply.
- (f) Turbidity or Color - There shall be no turbidity or color in amounts or characteristics that cannot be reduced to acceptable concentrations by conventional water treatment processes (See definition).
- (g) Temperature - The maximum water temperature change shall not exceed 3C° relative to an upstream control point. The temperature of the water shall not exceed 30.5°C and the maximum rate of change shall not exceed 2C° per hour. The temperature of impoundments where stratification occurs will be measured at a depth of 5 feet or mid-depth, whichever is less, and the temperature in flowing streams shall be measured at mid-depth.
- (h) Coliform - The concentration of the E. coli group shall not exceed 630 per 100 ml, as a geometric mean based on a minimum of 5 samples collected from a given sampling site over a period of not more than 30 consecutive days with individual samples being collected at intervals of not less than 12 hours. For the purpose of determining the geometric mean, individual samples having an E. coli group concentration of less than 1 per 100 ml shall be considered as having a concentration of 1 per 100 ml.
- (i) Taste or Odor - The waters shall not contain substances which will result in taste or odor that prevent the production of potable water by conventional water treatment processes.
- (j) Toxic Substances - The waters shall not contain toxic substances, whether alone or in combination with other substances, which will produce toxic conditions that materially affect



(Rule 1200-4-3-.03, continued)

the health and safety of man or animals, or impair the safety of conventionally treated water supplies. Available references include, but are not limited to: Quality Criteria for Water (Section 304(a) of Public Law 92-500 as amended); Federal Regulations under Section 307 of Public Law 92-500 as amended; and Federal Regulations under Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act, (Public Law 93-523). Limits set for some of the most commonly occurring toxic substances are as follows:

Compound	Criteria (ug/L)	Compound	Criteria (ug/L)
Antimony	6	Diquat	20
Arsenic	10	Endothall	100
Beryllium	4	Glyphosate	700
Barium	2000	Hexachlorobenzene	1
Cadmium	5	Hexachlorocyclopentadiene	50
Chromium, total	100	Oxamyl (Vydate)	200
Lead	5	Picloram	500
Cyanide (as free cyanide)	200	Simazine	4
Mercury	2	2,3,7,8 TCDD (Dioxin)	0.00003
Nickel	100	Benzene	5
Compound	Criteria (ug/L)	Compound	Criteria (ug/L)
Selenium	50	Carbon tetrachloride	5
Thallium	2	1,2-Dichloroethane	5
Alachlor	2	1,1-Dichloroethylene	7
Atrazine	3	1,1,1-Trichloroethane	200
Carbofuran	40	Trichloroethylene	5
Chlordane	2	Vinyl chloride	2
Dibromo chloropropane	0.2	para-Dichlorobenzene	75
2,4 Dichlorophenoxyacetic	70	cis 1,2-Dichloroethylene	70
Ethylene dibromide	0.05	1,2-Dichloropropane	5
Heptachlor	0.4	Ethyl benzene	700
Heptachlor epoxide	0.2	Monochlorobenzene	100
Lindane	0.2	ortho-Dichlorobenzene	600
Methoxychlor	40	Styrene	100
Polychlorinated biphenyls	0.5	Tetrachloroethylene	5
2,4,5 Trichlorophenoxypropionic acid	50	Toluene	1000
Pentachlorophenol	1	trans 1,2-Dichloroethylene	100
Benzo(a)pyrene	0.2	Xylenes, total	10000
Dalapon	200	Dichloromethane	5
Di(2-ethylhexyl) adipate	400	1,2,4-Trichlorobenzene	70
Di(2-ethylhexyl) phthalate	6	1,1,2-Trichloroethane	5
Dinoseb	7	Endrin	2.0
		Toxaphene	3

(Rule 1200-4-3-.03, continued)

- (k) Other Pollutants - The waters shall not contain other pollutants in quantities that may be detrimental to public health or impair the usefulness of the water as a source of domestic water supply.

(2) Industrial Water Supply.

- (a) Dissolved Oxygen - There shall always be sufficient dissolved oxygen present to prevent odors of decomposition and other offensive conditions.
- (b) pH - The pH value shall lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24 hours.
- (c) Hardness or Mineral Compounds - The hardness of or the mineral compounds contained in the water shall not appreciably impair the usefulness of the water as a source of industrial water supply.
- (d) Total Dissolved Solids - The total dissolved solids shall at no time exceed 500 mg/l.
- (e) Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character as may impair the usefulness of the water as a source of industrial water supply.
- (f) Turbidity or Color - There shall be no turbidity or color in amounts or characteristics that cannot be reduced to acceptable concentrations by conventional water treatment processes.
- (g) Temperature - The maximum water temperature change shall not exceed 3C° relative to an upstream control point. The temperature of the water shall not exceed 30.5°C and the maximum rate of change shall not exceed 2C° per hour. The temperature of impoundments where stratification occurs will be measured at a depth of 5 feet or mid- depth, whichever is less, and the temperature in flowing streams shall be measured at mid-depth.
- (h) Taste or Odor - The waters shall not contain substances which will result in taste or odor that would prevent the use of the water for industrial processing.
- (i) Toxic Substances - The waters shall not contain toxic substances whether alone or in combination with other substances, which will adversely affect industrial processing.
- (j) Other Pollutants - The waters shall not contain other pollutants in quantities that may adversely affect the water for industrial processing.

(3) Fish and Aquatic Life.

- (a) Dissolved Oxygen - The dissolved oxygen shall not be less than 5.0 mg/l with the following exceptions.

1. In streams identified as trout streams, including tailwaters, dissolved oxygen shall not be less than 6 mg/L.

2. The dissolved oxygen concentration of trout waters designated as supporting a naturally reproducing population shall not be less than 8.0 mg/L. (Tributaries to trout streams or naturally reproducing trout streams should be considered to be trout streams or naturally

(Rule 1200-4-3-.03, continued)

reproducing trout streams, unless demonstrated otherwise. Additionally, all streams within the Great Smoky Mountains National Park should be considered naturally reproducing trout streams.)

3. In wadeable streams in subecoregion 73a and subecoregion 71i, dissolved oxygen levels shall not be less than a daily average of 5 mg/L with a minimum dissolved oxygen level of 4 mg/L. not be less than a daily average of 5 mg/L with a minimum dissolved oxygen level of 4 mg/L.

4. The dissolved oxygen level of streams in ecoregion 66 (Blue Ridge Mountains) not designated as naturally reproducing trout streams shall not be less than 7.0 mg/L.

Substantial and/or frequent variations in dissolved oxygen levels, including diurnal fluctuations, are undesirable if caused by man-induced conditions. Diurnal fluctuations shall not be substantially different than the fluctuations noted in reference streams in that region.

In lakes and reservoirs, the dissolved oxygen concentrations shall be measured at mid-depth in waters having a total depth of ten feet or less, and at a depth of five feet in waters having a total depth of greater than ten feet and shall not be less than 5.0 mg/L.

- (b) pH - The pH value shall not fluctuate more than 1.0 unit over a period of 24 hours and shall not be outside the following ranges: 6.0 – 9.0 in wadeable streams and 6.5 – 9.0 in larger rivers, lakes, reservoirs, and wetlands.

Subecoregion	Stream Order	pH Range
68a	1–2	5.5–8.0
68a	4+	6.0–9.0
65j	1–2	5.5–8.5
65j	3+	6.0–9.0
74b	All	5.5–8.5
All other wadeable streams		6.0–9.0
All other waters (larger rivers, reservoirs, wetlands)		6.5–9.0

- (c) Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to fish and aquatic life.
- (d) Turbidity, Total Suspended Solids, or Color - There shall be no turbidity, total suspended solids, or color in such amounts or of such character that will materially affect fish and aquatic life. In wadeable streams, suspended solid levels over time should not be substantially different than conditions found in reference streams.
- (e) Temperature - The maximum water temperature change shall not exceed 3C° relative to an upstream control point. The temperature of the water shall not exceed 30.5°C and the maximum rate of change shall not exceed 2C° per hour. The temperature of recognized trout waters shall not exceed 20°C. There shall be no abnormal temperature changes that may affect aquatic life unless caused by natural conditions. The temperature in flowing streams shall be measured at mid-depth.

The temperature of impoundments where stratification occurs will be measured at mid-depth in

(Rule 1200-4-3-.03, continued)

the epilimnion (see definition) for warm water fisheries and mid-depth in the hypolimnion (see definition) for cold water fisheries. In the case of large impoundments (100 acres or larger) subject to stratification and recognized as trout waters, the temperature of the hypolimnion shall not exceed 20°C. ~~The temperature in flowing streams shall be measured at mid-depth.~~

A successful demonstration as determined by the state conducted for thermal discharge limitations under Section 316(a) of the Clean Water Act, (33 U.S.C. §1326), shall constitute compliance with this section.

- (f) Taste or Odor - The waters shall not contain substances that will impart unpalatable flavor to fish or result in noticeable offensive odors in the vicinity of the water or otherwise interfere with fish or aquatic life. References include, but are not limited to: Quality Criteria for Water (section 304(a) of Public Law 92-500 as amended).
- (g) Toxic Substances - The waters shall not contain substances or a combination of substances including disease - causing agents which, by way of either direct exposure or indirect exposure through food chains, may cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction), physical deformations, or restrict or impair growth in fish or aquatic life or their offspring. References on this subject include, but are not limited to: Quality Criteria for Water (Section 304(a) of Public Law 92-500 as amended); Federal Regulations under Section 307 of Public Law 92-500 as amended. The following criteria are for the protection of fish and aquatic life:

Compound	Criterion Maximum Concentration ug/l (CMC)	Criterion Continuous Concentration ug/l (CCC)
Arsenic (III)*	340	150
Cadmium**	2.0	0.25
<del>Chromium, total</del>	<del>—</del>	<del>100</del>
<del>Chromium, III**</del>	<del>570</del>	<del>74</del>
Chromium, VI*	16	11
Copper**	13	9.0
Lead**	65	2.5
Mercury*	1.4	0.77
Nickel**	470	52
Selenium	20	5
Silver**	3.2	---
Zinc**	120	120
Cyanide**	22	5.2
Chlorine (TRC)	19	11
Pentachlorophenol***	19	15
Aldrin	3.0	---
g-BHC — Lindane	<del>2.0</del> 0.95	<del>0.08</del> ---
Chlordane	2.4	0.0043
Compound	Criterion Maximum Concentration ug/l (CMC)	Criterion Continuous Concentration ug/l (CCC)
4-4'-DDT	1.1	0.001
Dieldrin	0.24	0.056
a-Endosulfan	0.22	0.056
b-Endosulfan	0.22	0.056

(Rule 1200-4-3-.03, continued)

Endrin	0.086	0.036
Heptachlor	0.52	0.0038
Heptachlor epoxide	0.52	0.0038
PCBs, <del>total each areol</del>	---	0.014
Toxaphene	0.73	0.0002
<u>Tributyltin (TBT)</u>	<u>0.46</u>	<u>0.072</u>

\* Criteria for these metals are expressed as dissolved.

\*\* Criteria for these metals are expressed as dissolved and are a function of total hardness (mg/L). Hardness-dependent metals criteria may be calculated from the following (values displayed above correspond to a total hardness of 100 mg/l and may have been rounded):

$$\text{CMC (dissolved)} = \exp\{m_A[\ln(\text{hardness})] + b_A\} \text{ (CF)}$$

$$\text{CCC (dissolved)} = \exp\{m_C[\ln(\text{hardness})] + b_C\} \text{ (CF)}$$

Chemical	$M_A$	$b_A$	$M_C$	$B_C$	Freshwater Conversion Factors (CF)	
					CMC	CCC
Cadmium	1.0166	-3.924	0.7409	-4.719	$1.136672 - [(\ln \text{hardness})(0.041838)]$	$1.101672 - [(\ln \text{hardness})(0.041838)]$
<u>Chromium III</u>	<u>0.8190</u>	<u>3.7256</u>	<u>0.8190</u>	<u>0.6848</u>	<u>0.316</u>	<u>0.860</u>
Copper	0.9422	-1.700	0.8545	-1.702	0.960	0.960
Lead	1.273	-1.460	1.273	-4.705	$1.46203 - [(\ln \text{hardness})(0.145712)]$	$1.46203 - [(\ln \text{hardness})(0.145712)]$
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.59			0.85	
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

If criteria are hardness-dependent, the Criterion Maximum Concentration (CMC) and Criterion Continuous Concentration (CCC) shall be based on the actual stream hardness. When an ambient hardness of less than 25 mg/l is used to establish criteria for cadmium or lead, the hardness dependent conversion factor (CF) shall not exceed one. When ambient hardness is greater than 400 mg/l, criteria shall be calculated according to one of the following two options: (1) calculate the criterion using a default Water Effects Ratio (WER) of 1.0 and a hardness of 400 mg/l in the hardness based equation; or (2) calculate the criterion using a WER and the actual ambient hardness of the surface water in the hardness based equation. For information concerning metals translation and site-specific criteria, see 1200-4-3-.02 (9).

\*\* — If Standard Methods 4500-CN I (Weak Acid Dissociable), 4500-CN G (Cyanides Amenable to Chlorination after Distillation), or OIA-1677 are used, this criterion may be applied as free cyanide.

(Rule 1200-4-3-.03, continued)

\*\*\* Criteria for pentachlorophenol are expressed as a function of pH. Values displayed above correspond to a pH of 7.8 and are calculated as follows:

$$\text{CMC} = \exp(1.005(\text{pH}) - 4.869) \quad \text{CCC} = \exp(1.005(\text{pH}) - 5.134)$$

(h) Other Pollutants - The waters shall not contain other pollutants that will be detrimental to fish or aquatic life.

(i) Iron - The waters shall not contain iron at concentrations that cause toxicity or in such amounts that interfere with habitat due to precipitation or bacteria growth.

(j) Ammonia - The one-hour average concentration of total ammonia nitrogen (in mg N/L) shall not exceed the CMC (acute criterion) calculated using the following equations:

Where salmonid fish are present:

$$\text{CMC} = \frac{0.275}{1 + 10^{7.204 - \text{pH}}} + \frac{39.0}{1 + 10^{\text{pH} - 7.204}}$$

Or where salmonid fish are not present:

$$\text{CMC} = \frac{0.411}{1 + 10^{7.204 - \text{pH}}} + \frac{58.4}{1 + 10^{\text{pH} - 7.204}}$$

The thirty-day average concentration of total ammonia nitrogen (in mg N/L) shall not exceed the CCC (chronic criterion) calculated using the following equations:

When fish early life stages are present:

$$\text{CCC} = \left[ \frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right] \text{MIN}(2.85, 1.45 \cdot 10^{0.028(25 - T)})$$

When fish early life stages are absent:

$$\text{CCC} = \left[ \frac{0.0577}{1 + 10^{7.688 - \text{pH}}} + \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \right] 1.45 \cdot 10^{0.028(25 - \text{MAX}(T, 7))}$$

In addition, the highest four-day average within the 30-day period shall not exceed 2.5 times the CCC.



(Rule 1200-4-3-.03, continued)

- (k) **Nutrients** - The waters shall not contain nutrients in concentrations that stimulate aquatic plant and/or algae growth to the extent that aquatic habitat is substantially reduced and/or the biological integrity fails to meet regional goals. Additionally, the quality of downstream waters shall not be detrimentally affected.

Interpretation of this provision may be made using the document Development of Regionally-based Interpretations of Tennessee's Narrative Nutrient Criterion -and/or other scientifically defensible methods.

- (l) **Coliform** - The concentration of the E. coli group shall not exceed 630 per 100 ml as a geometric mean based on a minimum of 5 samples collected from a given sampling site over a period of not more than 30 consecutive days with individual samples being collected at intervals of not less than 12 hours. For the purposes of determining the geometric mean, individual samples having an E. coli group concentration of less than 1 per 100 ml shall be considered as having a concentration of 1 per 100 ml. In addition, the concentration of the E. coli group in any individual sample shall not exceed 2,880 per 100 ml.

- (m) **Biological Integrity** - The waters shall not be modified through the addition of pollutants or through physical alteration to the extent that the diversity and/or productivity of aquatic biota within the receiving waters are substantially decreased or adversely affected, except as allowed under 1200-4-3-.06.

Interpretation of this provision for any stream which (a) has at least 80% of the upstream catchment area contained within a single bioregion and (b) is of the appropriate stream order specified for the bioregion and (c) contains the habitat (riffle or rooted bank) specified for the bioregion, may be made using the most current revision of the Department's Quality System Standard Operating Procedure for Macroinvertebrate Stream Surveys and/or other scientifically defensible methods.

Interpretation of this provision for all other wadeable streams, plus large rivers, lakes, and reservoirs, and wetlands, may be made using Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers (EPA/841-B-99-002) or Lake and Reservoir Bioassessment and Biocriteria (EPA 841-B-98-007), and/or other scientifically defensible methods. Interpretation of this provision for wetlands or large rivers may be made using scientifically defensible methods. Effects to biological populations will be measured by comparisons to upstream conditions or to appropriately selected reference sites in the same bioregion if upstream conditions are determined to be degraded.

- ~~(n)~~ **Habitat** - The quality of ~~instream~~ habitat shall provide for the development of a diverse aquatic community that meets regionally-based biological integrity goals. Types of habitat loss can include, but are not limited to: channel and substrate alterations, rock and gravel removal, stream flow changes, accumulation of silt, precipitation of metals, and removal of riparian vegetation. For wadeable streams, the instream habitat within each subcoregion shall be generally similar to that found at reference streams. However, streams shall not be assessed as impacted by habitat loss if it has been demonstrated that the biological integrity goal has been met.

- (o) Flow - Stream or other waterbody flows shall support the fish and aquatic life criteria.

(4) **Recreation.**

- (a) **Dissolved Oxygen** - There shall always be sufficient dissolved oxygen present to prevent odors of decomposition and other offensive conditions.

(Rule 1200-4-3-.03, continued)

- (b) pH - The pH value shall lie within the range of ~~6.0-5.5~~ to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24 hours.
- (c) Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to recreation.
- (d) Total Suspended Solids, Turbidity or Color - There shall be no total suspended solids, turbidity or color in such amounts or character that will result in any objectionable appearance to the water, considering the nature and location of the water.
- (e) Temperature - The maximum water temperature change shall not exceed 3C° relative to an upstream control point. The temperature of the water shall not exceed 30.5°C and the maximum rate of change shall not exceed 2C° per hour. The temperature of impoundments where stratification occurs will be measured at a depth of 5 feet, or mid- depth whichever is less, and the temperature in flowing streams shall be measured at mid-depth.
- (f) Coliform - The concentration of the E. coli group shall not exceed 126 colony forming units per 100 ml, as a geometric mean based on a minimum of 5 samples collected from a given sampling site over a period of not more than 30 consecutive days with individual samples being collected at intervals of not less than 12 hours. For the purposes of determining the geometric mean, individual samples having an E. coli concentration of less than 1 per 100 ml shall be considered as having a concentration of 1 per 100 ml.

Additionally, the concentration of the E. coli group in any individual sample taken from a lake, reservoir, State Scenic River, ~~or Exceptional Tennessee Water or ONRW Tier II or III stream~~ (1200-4-3-.06) shall not exceed 487 colony forming units per 100 ml. The concentration of the E. coli group in any individual sample taken from any other waterbody shall not exceed 941 colony forming units per 100 ml.

- (g) Taste or Odor - The waters shall not contain substances that will result in objectionable taste or odor.
- (h) Nutrients - The waters shall not contain nutrients in concentrations that stimulate aquatic plant and/or algae growth to the extent that the public's recreational uses of the waterbody stream or other downstream waters are detrimentally ~~effected~~affected. Unless demonstrated otherwise, the nutrient criteria found in 1200-4-3-.03(3)(~~ki~~) will be considered adequately protective of this use.
- (i) Nutrient Response Criteria for Pickwick Reservoir: those waters impounded by Pickwick Dam on the Tennessee River. The reservoir has a surface area of 43,100 acres at full pool, 9,400 acres of which are within Tennessee. Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20<sup>th</sup> Edition, 1998): the mean of the photic-zone (See definition) composite chlorophyll *a* samples collected monthly April through September shall not exceed 18 µg/l, as measured over the deepest point, main river channel, dam forebay.
- (j) Toxic Substances - The waters shall not contain toxic substances, whether alone or in combination with other substances, that will render the waters unsafe or unsuitable for water contact activities including the capture and subsequent consumption of fish and shellfish, or will propose toxic conditions that will adversely affect man, animal, aquatic life, or wildlife. Human health criteria have been derived to protect the consumer from consumption of contaminated fish and water. The water and organisms criteria should only be applied to those



(Rule 1200-4-3-.03, continued)

waters classified for both recreation and domestic water supply. The criteria for recreation are as follows:

Compound	Water & Organisms Criteria * (ug/L)	Organisms Only Criteria (ug/L)
<u>INORGANICS</u>		
Antimony	5.6	640
Arsenic (c)	10.0	10.0
Compound	Water & Organisms Criteria * (ug/L)	Organisms Only Criteria (ug/L)
Mercury	0.05	0.051
Nickel	610	4600
Thallium	<del>1.7</del> 0.24	<del>6.3</del> 0.47
Cyanide	<del>700</del> 140	<del>220000</del> 140
Dioxin **	0.000001	0.000001
<u>VOLATILES</u>		
Acrolein	190	290
Acrylonitrile (c)	0.51	2.5
Benzene (c)	22	510
Bromoform (c)	43	1400
Carbon tetrachloride (c)	2.3	16
Chlorobenzene	<del>680</del> 130	<del>21000</del> 1600
Chlorodibromomethane (c)	4.0	130
Chloroform (c)	57	4700
Dichlorobromomethane (c)	5.5	170
1,2-Dichloroethane (c)	3.8	370
1,1-Dichloroethylene (e)	<del>0.57</del> 330	<del>32</del> 7100
1,2-Dichloropropane (c)	5.0	150
1,3-Dichloropropene (c)	<del>10</del> 3.4	<del>1700</del> 210
Ethylbenzene	<del>3100</del> 530	<del>29000</del> 2100
Methyl bromide	47	1500
Methylene chloride (c)	46	5900
1,1,2,2-Tetrachloroethane (c)	1.7	40
Tetrachloroethylene (c)	6.9	33
Toluene	<del>6800</del> 1300	<del>200000</del> 15000
1,2-Trans-Dichloroethylene	<del>700</del> 140	<del>140000</del> 10000
1,1,2-Trichloroethane (c)	5.9	160
Trichloroethylene (c)	25	300
Vinyl chloride (c)	<del>20</del> 0.25	<del>5300</del> 24

(Rule 1200-4-3-.03, continued)

ACID EXTRACTABLES

2-Chlorophenol	81	150
2,4-Dichlorophenol	77	290
2,4-Dimethylphenol	380	850
2-Methyl-4,6-dinitrophenol	13	280
2,4-Dinitrophenol	69	5300
Pentachlorophenol (c) (pH)	2.7	30
Phenol	21000	1700000
2,4,6-Trichlorophenol (c)	14	24

BASE NEUTRALS

Acenaphthene	670	990
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Compound	Water & Organisms Criteria * (ug/L)	Organisms Only Criteria (ug/L)
Anthracene	8300	40000
Benidine (c)	0.00086	0.0020
Benzo(a)anthracene (c)	0.038	0.18
Benzo(a)pyrene (c)	0.038	0.18
Benzo(b)fluoranthene (c)	0.038	0.18
Benzo(k)fluoranthene (c)	0.038	0.18
Bis(2-Chlorethyl)ether (c)	0.30	5.3
Bis(2-Chloro-isopropyl)ether	1400	65000
Bis(2-Ethylhexyl)phthalate (c)	12	22
Butylbenzyl Phthalate	1500	1900
2-Chloronaphthalene	1000	1600
Chrysene (c)	0.038	0.18
Dibenz(a,h)Anthracene (c)	0.038	0.18
1,2-Dichlorobenzene	<del>3700</del> 420	<del>17000</del> 1300
1,3-Dichlorobenzene	320	960
1,4-Dichlorobenzene	<del>400</del> 63	<del>2600</del> 190
3,3-Dichlorobenzidine (c)	0.21	0.28
Diethyl phthalate	17000	44000
Dimethyl phthalate	270000	1100000
Di-n-butyl phthalate	2000	4500
2,4-Dinitrotoluene (c)	1.1	34
1,2-Diphenylhydrazine (c)	0.36	2.0
Fluoranthene	130	140
Fluorene	1100	5300
Hexachlorobenzene (c)	0.0028	0.0029
Hexachlorobutadiene (c)	4.4	180
Hexachlorocyclopentadiene	<del>240</del> 40	<del>17000</del> 1100
Hexachloroethane (c)	14	33
Ideno(1,2,3-cd)Pyrene (c)	0.038	0.18
Isophorone (c)	350	9600
Nitrobenzene	17	690
N-Nitrosodimethylamine (c)	0.0069	30
N-Nitrosodi-n-Propylamine (c)	0.05	5.1
N-Nitrosodiphenylamine (c)	33	60

(Rule 1200-4-3-.03, continued)

Pyrene	830	4000
1,2,4-Trichlorobenzene	<del>260</del> <u>35</u>	<del>940</del> <u>70</u>
<b>PESTICIDES</b>		
Aldrin (c)	0.00049	0.00050
a-BHC (c)	0.026	0.049
b-BHC (c)	0.091	0.17
g-BHC - Lindane (c)	<del>0.19</del> <u>.98</u>	<del>0.63</del> <u>1.8</u>
Chlordane (c)	0.0080	0.0081
4-4'-DDT (c)	0.0022	0.0022
4,4'-DDE (c)	0.0022	0.0022
4,4'-DDD (c)	0.0031	0.0031
Dieldrin (c)	0.00052	0.00054

Compound	Water & Organisms Criteria * (ug/L)	Organisms Only Criteria (ug/L)
a-Endosulfan	62	89
b-Endosulfan	62	89
Endosulfan Sulfate	62	89
Endrin	<del>0.76</del> <u>0.059</u>	<del>0.81</del> <u>0.06</u>
Endrin Aldehyde	0.29	0.30
Heptachlor (c)	0.00079	0.00079
Heptachlor epoxide (c)	0.00039	0.00039
<del>PCB areolers (c) (EPA 119-125)</del>	<del>0.00064</del>	<del>0.00064</del>
PCB, total (c)	0.00064	0.00064
Toxaphene (c)	0.0028	0.0028

(c)  $10^{-5}$  risk level is used for all carcinogenic pollutants.

\* These criteria are for protection of public health due to consumption of water and organisms and should only be applied to these waters designated for both recreation and domestic water supply.

\*\* Total dioxin is the sum of the concentrations of all dioxin and dibenzofuran isomers after multiplication by Toxic Equivalent Factors (TEFs). Following are the TEFs currently recommended by EPA (subject to revision):

DIOXIN ISOMERS	TEF	FURAN ISOMERS	TEF
Mono-, Di-, & TriCDDs	0.0	Mono-, Di-, & TriCDFs	0.0
2,3,7,8 TCDD	1.0	2,3,7,8 TCDF	0.1
Other TCDDs	0.0	Other TCDFs	0.0
2,3,7,8 PeCDD	0.5	1,2,3,7,8 PeCDF	0.05
Other PeCDDs	0.0	2,3,4,7,8 PeCDF	0.5
		Other PeCDFs	0.0
2,3,7,8 HxCDD	0.1	Other PeCDFs	0.0
Other HxCDDs	0.0	2,3,7,8 HxCDF	0.1
		Other HxCDFs	0.0

(Rule 1200-4-3-.03, continued)

2,3,7,8 HpCDD	0.01	2,3,7,8 HpCDF	0.01
Other HpCDDs	0.0	Other HpCDFs	0.0
OCDD	0.001	OCDF	0.001

(k) Other Pollutants - The waters shall not contain other pollutants in quantities which may have a detrimental effect on recreation.

(l) Fish Consumption Advisories - A public fishing advisory will be considered when the calculated risk of additional cancers exceeds  $10^{-4}$  for typical consumers or  $10^{-5}$  for atypical consumers (See definition). A "do not consume" advisory will be issued for the protection of typical consumers and a "precautionary advisory" will be issued for the protection of atypical consumers. The following formula will be used to calculate the risk of additional cancers :

$$R = qE$$

where:

R = Plausible-upper-limit risk of cancer associated with a chemical in a fisheries species for a human subpopulation.

q = Carcinogenic Potency Factor for the chemical ( $\text{mg kg}^{-1} \text{ day}^{-1}$ )<sup>-1</sup> estimated as the upper 95 percent confidence limit of the slope of a linear dose-response curve. Scientifically defensible Potency Factors will be used.

E = Exposure dose of the chemical ( $\text{mg kg}^{-1} \text{ day}^{-1}$ ) from the fish species for the human subpopulation in the area. E is calculated by the following formula:

$$E = \frac{C I X}{W} \quad \text{where:}$$

C = Concentration of the chemical (mg/kg) in the edible portion of the species in the area. The average levels from multiple fillet samples of the same species will be used. Catfish will be analyzed skin-off with the belly flap included in the sample. Gamefish and carp will be analyzed skin-on with the belly flap included in the sample. Sizes of fish collected for analysis will represent the ranges of sizes likely to be collected and consumed by the public. References on this subject include, but are not limited to: EPA's Guidance for Assessing Chemical Contaminant Data for use in Fish Advisories.

I = Mean daily consumption rate (g/day averaged over 70 year lifetime) of the fish species by the human subpopulation in the area. 6.5 g/day will be used unless better site-specific information is available.

X = Relative absorption coefficient, or the ratio of human absorption efficiency to test animal absorption efficiency of the chemical. Assumed to be 1.0 unless better information is available.

W = Average human mass (kg). 75 kg will be used.

For substances for which the public health concern is based on toxicity, a "do not consume" advisory will be considered warranted when average levels of the substance in the edible

(Rule 1200-4-3-.03, continued)

portion of fish exceed U.S. Food and Drug Administration (FDA) Action Levels or EPA national criteria. Based on the rationale used by FDA or EPA for their levels, the Commissioner may issue precautionary advisories at levels appropriate to protect sensitive populations.

(m) Flow – Stream flows shall support recreational uses.

(5) Irrigation.

- (a) Dissolved Oxygen - There shall always be sufficient dissolved oxygen present to prevent odors of decomposition and other offensive conditions.
- (b) pH - The pH value shall lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24 hours.
- (c) Hardness or Mineral Compounds - The hardness of or the mineral compounds contained in the water shall not impair its use for irrigation.
- (d) Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character as may impair the usefulness of the water for irrigation purposes.
- (e) Temperature - The temperature of the water shall not interfere with its use for irrigation purposes.
- (f) Toxic Substances - The waters shall not contain toxic substances whether alone or in combination with other substances which will produce toxic conditions that adversely affect the quality of the waters for irrigation.
- (g) Other Pollutants - The waters shall not contain other pollutants in quantities which may be detrimental to the waters used for irrigation.

(6) Livestock Watering and Wildlife.

- (a) Dissolved Oxygen - There shall always be sufficient dissolved oxygen present to prevent odors of decomposition and other offensive conditions.
- (b) pH - The pH value shall lie within the range of 6.0 to 9.0 and shall not fluctuate more than 1.0 unit in this range over a period of 24 hours.
- (c) Hardness or Mineral Compounds - The hardness of or the mineral compounds contained in the water shall not impair its use for livestock watering and wildlife.
- (d) Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character as to interfere with livestock watering and wildlife.
- (e) Temperature - The temperature of the water shall not interfere with its use for livestock watering and wildlife.

(Rule 1200-4-3-.03, continued)

- (f) Toxic Substances - The waters shall not contain substances whether alone or in combination with other substances, which will produce toxic conditions that adversely affect the quality of the waters for livestock watering and wildlife.
  - (g) Other Pollutants - The waters shall not contain other pollutants in quantities which may be detrimental to the water for livestock watering and wildlife.
- (7) Navigation.
- (a) Solids, Floating Materials and Deposits - There shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character as to interfere with navigation.
  - (b) Other Pollutants - The waters shall not contain other pollutants in quantities which may be detrimental to the waters used for navigation.

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule certified June 7, 1974. Amendment filed December 1, 1975; effective December 30, 1975. Amendment filed November 25, 1977; effective December 26, 1977. Amendment filed March 30, 1983; effective April 29, 1983. Amendment filed July 16, 1991; effective August 30, 1991. Amendment filed May 16, 1995; effective July 30, 1995. Amendment filed July 13, 1999; effective October 11, 1999. Amendment filed October 24, 2003; effective January 7, 2004.

**1200-4-3-.04 DEFINITIONS.** In addition to the meanings provided in the Water Quality Control Act (T.C.A. §§69-3-103), terms used in these rules shall have the meanings provided below.

- ~~(1910)~~ Atypical consumers ~~are— these—Those~~ persons in the vicinity of a stream or lake who due to physiological factors or previous exposure are more sensitive to specific pollutants than is the population in general. Examples of atypical consumers may include, but are not limited to: children; pregnant or nursing women; subsistence fishermen; frequent purchasers of commercially harvested fish; and agricultural, industrial, or military personnel who may have had previous occupational exposure to the contaminant of concern.
- ~~(2+)~~ Conventional Water Treatment - Conventional water treatment as referred to in the criteria denotes coagulation, sedimentation, filtration, and chlorination or disinfection.
- ~~(34)~~ Degradation - The alteration of the properties of waters by the addition of pollutants or removal of habitat. \_\_\_\_\_
- (4) De Minimis — Alterations, other than those not resulting in the condition of pollution or new domestic wastewater discharges, that are represent either a small magnitude or a short duration shall be considered a de minimis impact and will not be considered degradation- of a temporary nature or those alterations having de minimus impact (no measurable or less than 5 percent loss of assimilative capacity) will not be considered degradation for purposes of implementing the antidegradation policy. Discharges other than domestic wastewater will be considered de minimis if they are temporary or use less than five percent of the available assimilative capacity for the substance being discharged. -Water withdrawals will be considered de minimis if less than five percent of the 7Q10 flow of the stream is removed (the calculations of the low flow shall take into account existing withdrawals). Habitat alterations authorized by an Aquatic Resource Alteration Permit (ARAP) are de minimis if the division finds that the impacts are offset by a combination of impact minimization and/or in-system mitigation. Stream habitat alterations that require an individual Aquatic Resources Alteration Permit (ARAP) shall not be considered de minimis, unless a combination of impact minimization and/or in-system mitigation renders the impacts to be of an appropriately small magnitude or short duration.
- If more than one activity has been authorized in a segment and the total of the impacts uses no more



~~than The limit on cumulative de minimus degradation is ten percent of the assimilative capacity, available habitat, or 7Q10 low flow. they are presumed to be de minimis. -Where total impacts use more than ten percent of the assimilative capacity, available habitat, or 7Q10 low flow they may be treated as de minimis provided that the division finds on a scientific basis that the additional degradation has an insignificant effect on the resource and that no single activity is allowed to consume more than five percent of the assimilative capacity, available habitat or 7Q10 low flow. Degradation will not be considered de minimus if a substantial loss (more than 50 percent) of assimilative capacity has already occurred.~~

~~(565)~~ Ecoregion - A relatively homogeneous area defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables.

~~(61+2)~~ Epilimnion - The upper layer of water in a thermally stratified lake or reservoir. This layer consists of the warmest water and has a fairly uniform (constant) temperature.

~~(7)~~ Hypolimnion - The lowest layer in a thermally stratified lake or reservoir. This layer consists of colder, more dense water, has a constant temperature and no mixing occurs. The hypolimnion of a eutrophic lake is usually low or lacking in oxygen.

~~(8)~~ Mixing Zone - That section of a flowing stream or impounded waters in the immediate vicinity of an outfall where an effluent becomes dispersed and mixed.

~~(9)~~ Photic Zone - the region of water through which light penetrates and where photosynthetic organisms live.

~~(1089)~~ Reference condition - A parameter-specific set of data from regional reference sites that establish the statistical range of values for that particular substance at least-impacted streams.

~~(1178)~~ Reference ~~site-Site~~ - ~~least-Least~~ impacted waters within an ecoregion that have been monitored to establish a baseline to which alterations of other waters can be compared.

~~(121011)~~ Stratification - The tendency in lakes and reservoirs for distinct layers of water to form as a result of vertical change in temperature and, therefore, in the density of water. During stratification, dissolved oxygen, nutrients, and other parameters of water chemistry do not mix well between layers, establishing chemical as well as thermal gradients.

~~(1367)~~ Subecoregion - A smaller, more homegenous area that has been delineated within an ecoregion.

~~(1423)~~ Thermocline - The middle layer in a thermally stratified lake or reservoir. In this layer there is a rapid decrease in temperature with depth. Also called the metalimnion.

~~(15)~~ Wadeable streams - Streams that can be sampled using a hand held, one meter square or smaller kick net without water and materials escaping over the top of the net.

~~(163)~~ Wet Weather Conveyances - ~~Wet weather conveyances are m~~Man-made or natural watercourses, including natural watercourses that have been modified by channelization, that flow only in direct response to precipitation runoff in their immediate locality and whose channels are above the groundwater table and which do not support fish or aquatic life and are not suitable for drinking water supplies. [T.C.A. § 4-5-202, T.C.A. § 69-3-105.]

~~(17)~~ Terminology not specifically defined herein shall be defined in accordance with the Tennessee Water Quality Control Act. [T.C.A. §§ 69-3-101, et seq.]

*Authority:* T.C.A. §§4-5-201 et seq., and 69-3-105. *Administrative History:* Original rule certified June 7, 1974. Amendment filed December 1, 1975; effective December 30, 1975. Amendment filed November 25, 1977; effective

*December 26, 1977. Amendment filed March 30, 1983; effective April 29, 1983. Amendment filed July 16, 1991; effective August 30, 1991. Amendment filed May 16, 1995; effective July 30, 1995. Amendment filed July 13, 1999; effective October 11, 1999. Amendment filed October 24, 2003; effective January 7, 2004.*

#### 1200-4-3-.05 INTERPRETATION OF CRITERIA.

- (1) Interpretation of the above criteria shall conform to any rules and regulations or policies adopted by the Water Quality Control Board.
- (2) The effect of treated sewage or waste discharge on the receiving waters shall be considered beyond the mixing zone except as provided in this paragraph, after they are mixed with the waters and beyond a reasonable zone of immediate effect. The extent to which this is practicable depends upon local conditions and the proximity and nature of other uses of the waters. Such mixing zones (See definition) shall be restricted in area and length and shall not (i) prevent the free passage of fish or cause aquatic life mortality in the receiving waters; (ii) contain materials in concentrations that exceed recognized acute criteria toxicity levels; beyond the zone immediately surrounding the outfall; for biota representative of the aquatic community in the receiving waters; (iii) result in offensive conditions; (iv) produce undesirable aquatic life or result in dominance of a nuisance species; (v) endanger the public health or welfare; or (vi) adversely affect the reasonable and necessary uses of the area; (vii) create a condition of chronic toxicity beyond the edge of the mixing zone; and (viii) adversely affect nursery and spawning areas, or (ix) adversely affect species with special state or federal status.
- (3) The technical and economical feasibility of waste treatment, recovery, or adjustment of the method of discharge to provide correction shall be considered in determining the time to be allowed for the development of practicable methods and for the specified correction, to the extent allowable under Rule 1200-4-3-.06 (5).
- (4) With the exception of nutrient criteria [(1200-4-3-.03(3)(i)), Water quality criteria for the fish and aquatic life and livestock watering and wildlife criteria set forth shall generally be applied on the basis of the following stream flows: unregulated streams - stream flows equal to or exceeding the 7-day minimum, 10-year recurrence interval; regulated streams - all flows in excess of the minimum critical flow occurring once in ten years as determined by an analysis of records of operation and approved by the Commissioner of the Tennessee Department of Environment and Conservation division. However, criteria that are wholly or partially based on direct measurements of ambient aquatic community health, such as the nutrient, biological integrity, and habitat criteria for the fish and aquatic life use, shall be applied in a way to ensure that the criteria are supportive of the designated use. These criteria should be considered independent of a specified minimum flow duration and recurrence. All other criteria, including nutrient criteria under the fish and aquatic life use, shall be applied on the basis of stream flows equal to or exceeding the 30 day minimum 5 year recurrence interval.
- (5) In general, deviations from normal water conditions are undesirable, but the magnitude and duration of the deviations shall be considered in interpreting the above criteria. When interpreting pathogen data, samples collected during or immediately after significant rain events may be treated as outliers unless caused by point source dischargers. Such outlier data may be given less weight in assessment decisions than non-rain event sampling results.
- (6) The criteria and standards provide that all discharges of sewage, industrial waste, and other waste shall receive the degree of treatment or effluent reduction necessary to comply with water quality standards, or state or federal laws and regulations pursuant thereto, and where appropriate will comply with the "Standards of Performance" as required by the Tennessee Water Quality Control Act, (T.C.A., §§69-3-101, et seq.).



(Rule 1200-4-3-.05, continued)

- (7) Where naturally formed conditions (e.g., geologic formations) or background water quality conditions are substantial impediments to attainment of the water quality standards, these natural or background conditions shall be taken into consideration in establishing any effluent limitations or restrictions on discharges to such waters.
- (8) There are cases in which the in-stream criteria as established by this rule are less than current chemical technological capabilities for analytical detection. In instances where permit limits established through implementation of these criteria are below analytical capabilities, compliance with those limits will be determined using the following detection limits, unless in specific cases other detection limits are demonstrated to be the best achievable because of the particular nature of the wastewater being analyzed:

REQUIRED METHOD DETECTION LEVELS [RDL] (ug/l)  
(Approved EPA Methods Must Be Used)

<u>INORGANICS</u>	<u>RDL</u>	<u>BASE NEUTRALS</u>	<u>RDL</u>
Antimony	3.0	Acenaphthylene (c)	2.3
Arsenic, total (c)	1.0	Anthracene	0.7
Arsenic (III) (c)	1.0	Benzo(a)anthracene (c)	0.3
Beryllium (c)	1.0	Benzo(a)pyrene (c)	0.3
Cadmium	1.0	3,4-Benzofluoranthene (c)	0.3
Chromium, total	1.0	Benzo(k)fluoranthene (c)	0.3
Chromium (III)	1.0	Bis(2-Chloroethyl)ether (c)	1.0
Chromium (VI)	10.0	Bis(2-Ethylhexyl)phthalate(c)	2.5
Copper	1.0	Chrysene	2.5
Lead	1.0	1,2-Dichlorobenzene	2.0
Mercury	0.2	1,3-Dichlorobenzene	2.0
Nickel	10.0	1,4-Dichlorobenzene -	
Selenium	2.0	para-Dichlorobenzene	4.4
Silver	1.0	Diethyl phthalate	1.9
Zinc	1.0	Dimethyl phthalate	1.6
Cyanide	5.0	Di-n-Butyl phthalate	2.5
		2,4-Dinitrotoluene (c)	1.0
Dioxin	0.00001	Fluoranthene	2.2
		Fluorene	0.3
<u>VOLATILES</u>		Hexachlorobenzene (c)	1.9
Acrolein	1.0	Hexachlorobutadiene (c)	5.0
Acrylonitrile (c)	1.0	Hexachloroethane (c)	0.5
Benzene (c)	1.0	Nitrobenzene	10.0
Bromoform -		Phenanthrene	0.7
Tribromomethane (c)	1.0	Pyrene	0.3
Carbon tetrachloride (c)	1.0		
Chloroform -		<u>PESTICIDES</u>	
Trichloromethane (c)	0.5	Aldrin (c)	0.5
Dichlorobromomethane (c)	1.0	g-BHC - Lindane (c)	0.5
1,2-Dichloroethane (c)	1.0	Chlordane (c)	0.1
1,1-Dichloroethylene (c)	1.0	4-4'-DDT (c)	0.1
1,3-Dichloropropylene	1.0	4,4'-DDE (c)	0.1
Ethylbenzene	1.0	4,4'-DDD (c)	0.1
Methyl chloride -		Dieldrin (c)	0.05
Chloromethane (c)	1.0	a-Endosulfan	0.1
Methylene chloride -		b-Endosulfan	0.05
Dichloromethane (c)	1.0	Endrin	0.1
1,1,2,2-Tetrachloroethane (c)	0.5	Heptachlor (c)	0.05
Tetrachloroethylene (c)	0.5	Heptachlor epoxide (c)	0.08
Toluene	1.0	PCB-1242 (c)	0.5
1,1,1-Trichloroethane	1.0	PCB-1254 (c)	0.5
1,1,2-Trichloroethane (c)	0.2	PCB-1221 (c)	0.5
Trichloroethylene (c)	1.0	PCB-1232 (c)	0.5

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Vinyl chloride (c)	2.0	PCB-1248 (c)	0.5
		PCB-1260 (c)	0.5
<b>ACID EXTRACTABLES</b>		PCB-1016 (c)	0.5
2-Methyl-4,6-dinitrophenol-		PCB, total (c)	0.5
4,6-Dinitro-o-cresol	24.0	Toxaphene (c)	0.5
2,4-Dinitrophenol	42.0		
Pentachlorophenol	5.0		
2,4,6-Trichlorophenol (c)	2.7	(c) - carcinogen	

~~(9) The criteria shall be applied using the total recoverable method, unless otherwise specified, or the Division conducts or approves a chemical speciation study which determines the bioavailable or toxic fraction of a specific chemical.~~

*Authority:* T.C.A. §§4-5-201 et seq., and 69-3-105. *Administrative History:* Original rule certified June 7, 1974. Amendment filed December 1, 1975; effective December 30, 1975. Amendment filed November 25, 1977; effective December 26, 1977. Amendment filed March 30, 1983; effective April 29, 1983. Amendment filed July 16, 1991; effective August 30, 1991. Amendment filed May 16, 1995; effective July 30, 1995. Amendment filed July 13, 1999; effective October 11, 1999. Amendment filed October 24, 2003; effective January 7, 2004.

#### 1200-4-3-.06 ~~TENNESSEE~~ ANTIDEGRADATION STATEMENT.

- (1) It is the purpose of Tennessee's standards to fully protect existing uses of all surface waters as established under the Act. Existing uses are those actually attained in the waterbody on or after November 28, 1975. ~~Additionally, the Tennessee Water Quality Standards shall not be construed as permitting the degradation (see definition) of high quality surface waters. Where the quality of Tennessee waters is better than the level necessary to support propagation of fish, shellfish, and wildlife, and recreation in and on the water, that quality will be maintained and protected unless the state finds, after intergovernmental coordination and public participation, that lowering water quality is necessary to accommodate important economic or social development in the area in which the waters are located.~~

~~Sources exempted from permit requirements under the Water Quality Control Act should utilize all cost-effective and reasonable best management practices. Additionally, the Tennessee Water Quality Standards shall not be construed as permitting the degradation (See definition) of high quality surface waters. Activities that cause or contribute to non-compliance with a water quality standard will not be allowed. Activities proposed for waters that are not identified as either being Exceptional Tennessee Waters (1200-4-3-.06(4)) or Outstanding National Resource Waters (1200-4-3-.06(5)), will be evaluated on the basis of 1200-4-3-.06(2) and (3). Tier 1 and Tier 2 waters shall be identified on a parameter by parameter basis.~~

~~Where new or increased temperature alterations are proposed, a successful demonstration as determined by the state under Section 316(a) of the Clean Water Act, 33 U.S.C. §1326, shall be considered to be in compliance with this section.~~

- ~~-(2) Unavailable conditions exist where water quality is at, or fails to meet, the criterion for one or more parameters. In unavailable conditions, new or increased discharges of a substance that would cause or contribute to a condition of impairment will not be allowed. Where impairment by habitat alteration exists, additional significant loss of habitat within the same area of influence shall not be authorized unless avoidance, minimization, or in-system mitigation can render the impact *de minimis*. Tier 1—In bodies of water identified as Tier I by the Division, existing uses will be maintained by application of the General Water Quality Criteria. In Tier I waters found to be at or not meeting not meet a water quality standards for a substance, new or increased discharges of that substance will not be allowed.~~

(Rule 1200-4-3-.06, continued)

~~In waters identified as impacted by habitat alteration, additional significant loss of habitat shall not be authorized unless avoidance, minimization, or in-system mitigation can render the impact de minimis.~~

- (3) ~~Available conditions exist where water quality is better than the applicable criterion for a specific parameter. In available conditions, new or additional degradation for that parameter will only be allowed if the applicant has demonstrated to the division that reasonable alternatives to degradation are not feasible.~~

~~(a) Analysis of reasonable alternatives shall be part of the application process and shall include a discussion of the feasibility of all potential alternatives, plus the social and economic considerations and environmental consequences of each. Alternatives analyses shall include, at a minimum, completed and accurate Worksheets A and B for public sector applicants or Worksheets A and G for private system applicants, except where these worksheets are inappropriate for the activity, in which case applicants may substitute materials that provide equivalent information. These forms are found in the EPA guidance document entitled Interim Economic Guidance for Water Quality Standards: Workbook (EPA 823/B-95-002) (Economic Guidance). Reasonable alternatives for the various activities include, but are not limited to the following actions. Tier 2: Waters With Assimilative Capacity. For substances or conditions not currently at or in violation of water quality standards, new or additional degradation will only be allowed if the applicant has demonstrated to the Department that reasonable alternatives to degradation are not feasible. Reasonable alternatives for the various activities discharges include, but are not limited to~~

- ~~1. Alternatives for discharges include connection to an existing collection system, land application, water reuse, or water recycling, or other treatment alternatives. For small domestic discharges, connection to an existing system or land application will be considered preferable.~~
- ~~2. For water withdrawals, alternatives include water conservation, water reuse or recycling, off-stream impoundments, water harvesting during high flow conditions, regionalization, withdrawing water from a larger water body, use of ground water, connection to another water supply with available capacity, and pricing structures that encourage a reduction in consumption.~~
- ~~3. For activities that cause habitat alterations, alternatives that minimize or avoid degradation should be explored and explained by the applicant. These avoidance or minimization activities could include maintaining or enhancing buffer zones, bridging a stream rather than culverting it, altering the footprint of a project instead of relocating a stream, or using a culvert without a bottom, instead of one that is fully concreted.~~

~~Sources exempted from permit requirements under the Water Quality Control Act should utilize all cost-effective and reasonable best management practices.~~

~~The alternatives analysis shall be part of the application process and shall include a discussion of the feasibility of all potential alternatives, plus the social and economic considerations, and environmental consequences of each potential alternative. Alternatives analyses shall include, at a minimum, completed and accurate Worksheets A and B for public sector applicants or Worksheets A and G for private system applicants, except where these worksheets are inappropriate for the activity, in which case applicants may substitute materials that provide equivalent information. These forms are found in the EPA guidance document entitled Interim Economic Guidance for Water Quality Standards: Workbook (EPA 823/B-95-002) (Economic Guidance).~~



(Rule 1200-4-3-.06, continued)

(b) For authorized new or expanded discharges, a record of the anti-degradation determination(s) will be maintained and will be available for public review. Public participation and intergovernmental coordination will be provided in conjunction with permitting activities.

(42) ~~Exceptional Tennessee Waters (Tier 2.5) are: Followings are the specific characteristics of~~

~~Exceptional Tennessee Waters: The Tennessee Water Quality Standards shall not be construed as permitting the degradation (See definition) of high quality surface waters. High quality waters are Tier II or Tier III. In Tennessee, Tier III waters are also referred to as Outstanding National Resource Waters (ONRWs). Characteristics of high quality waters include:~~

(a) Waters within state or national parks, wildlife refuges or management areas, forests, wilderness areas, or natural areas.

(b) State Scenic Rivers or Federal Wild and Scenic Rivers.

(c) ~~Federally-designated critical habitat or other waters with documented that provide habitat for ecologically significant non-experimental populations of state or federally-listed threatened or endangered aquatic or semi-aquatic plants or animals, including those proposed or listed for formal state or federal status.~~

(d) ~~Waters within areas federally-designated as Lands Unsuitable for Mining pursuant to the Federal Surface Mining Control and Reclamation Act.~~

(e) ~~Naturally reproducing trout streams. Waters that provide specialized recreational opportunities related to existing water quality.~~

(f) ~~Waters with exceptional biological diversity as evidenced by a score of 40 or 42 on the Tennessee Macroinvertebrate Index (or a score of 28 or 30 in subregion 73a), provided that the sample is considered representative of overall stream conditions. Waters that possess outstanding scenic or geologic values.~~

(g) Other waters with outstanding scenic, ecological, or recreational value as determined by the department.

(4) ~~Waters where existing conditions exceed water quality standards.~~

~~The following will maintain a list of waterbodies that have been reviewed and are known to have one or more of the above characteristics on its website and will make paper copies of that list available upon request. However, the Exceptional Tennessee Waters are not limited to this list.~~

(3) ~~In other waters identified by the Department as Exceptional Tennessee Waters, Tier II-high~~

~~quality waters in accordance with 1200-4-3-.06(2), no degradation will be allowed unless and until it is affirmatively demonstrated to the Department, after full satisfaction of the following intergovernmental and public participation provisions, that a change is justified as a result of any classified uses existing in such waters. At the time of permit renewal, previously authorized discharges, including upstream discharges, which presently degrade Exceptional Tennessee Waters, Tier II waters, will be subject to a review of updated alternatives analysis information provided by the applicant, but not to a determination of economic/social necessity. Public participation for these existing discharges will be provided in conjunction with~~

(Rule 1200-4-3-.06, continued)

permitting activities. Sources exempted from permit requirements under the Water Quality Control Act should utilize all cost-effective and reasonable best management practices.

(ebh) Determination of Economic/Social Necessity - Where reasonable alternatives to degradation to ~~an Exceptional Tennessee Water is Tier II stream are~~ not feasible, applicants may ask the Department to determine that the proposed degradation is justified on the basis of economic or social necessity. The applicant shall have the burden of establishing to the Department that a change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to any classified uses existing in such waters. The Department's determination that degradation is justified or unjustified shall be subject to review by the Water Quality Control Board under the following procedures.

1. If the Department determines that degradation is justified, it will notify the applicant, the federal and state intergovernmental coordination agencies, and third persons who requested notification of the determination. Within 30 days after the date of the notification, any affected intergovernmental coordination agency or affected third person may petition the Board for a declaratory order under Tennessee Code Annotated § 4-5-223, and the Board shall convene a contested case. After the Board has convened a contested case in response to a declaratory order petition under this part, the Department shall within 5 business days thereafter transmit the petition to the Administrative Procedures Division of the Secretary of State so the contested case may be docketed and an administrative law judge may be assigned to the case. If a declaratory order petition is timely filed, the Department shall not proceed further in processing the permit application until the petition has been resolved before the Board. In the contested case, the petitioner shall have the burden of proof, and the Department's determination shall carry no presumption of correctness before the Board. The applicant is a necessary party to the declaratory order contested case, and if the applicant does not participate in the contested case, the Board shall render a decision that degradation is not justified. If no intergovernmental coordination agency or third person petitions for a declaratory order within 30 days of the notification date, then the Department shall proceed with processing the permit application.
2. A declaratory order contested case conducted under this provision shall be subject to the following procedures. Mediation may occur if all the parties agree. Any proposed agreed order resulting from mediation shall be subject to approval by the Board. In order to provide for an expedited proceeding, the contested case is subject to the following time limitations. The time periods specified in this part shall commence on the day after the contested case has been docketed by the Administrative Procedures Division of the Secretary of State and an administrative law judge has been assigned to the case. Any alteration of the time periods set out in this part shall be granted only upon agreement of all the parties, or when there have been unforeseen developments that would cause substantial prejudice to a party, or when the parties have agreed to mediation. Within 20 days, the parties shall confer to try and develop a proposed agreed scheduling order. If the parties are unable to agree, then each party shall submit a proposed scheduling order, and the administrative law judge, after a hearing, shall enter a scheduling order. All discovery shall be completed no later than 20 days prior to the date the hearing before the Board is to begin. Within 120 days, the hearing before the Board shall begin, but the Board on its own initiative may exceed 120 days to complete the hearing and render its final decision. In order for degradation of ~~Exceptional Tennessee Waters Tier II waters~~ to proceed pursuant to these rules, the Board must make a finding approving degradation by a majority vote of the members of the Board present and voting.
3. If the Department determines that degradation is not justified, it will notify the applicant, the federal and state intergovernmental coordination agencies, and third persons who

(Rule 1200-4-3-.06, continued)

requested notification of the determination. The Department also will issue a tentative decision to deny the permit because degradation is not justified. In accordance with 1200-4-1-.05(3), the Department will provide the public with notice of and an opportunity to comment on its tentative denial decision. If no public hearing is requested within the 30 day public comment period, and if the Department does not alter its tentative decision to deny, the Department shall notify the applicant of its final decision to deny the permit because degradation is not justified. Within 30 days after receiving notice of the final decision to deny the permit, the applicant may seek review of the decision in a contested case before the Board in accordance with Tennessee Code Annotated § 69-3-105(i). Within 5 business days after the Department receives an applicant's written request for a contested case hearing before the Board, the Department shall transmit the written request to the Administrative Procedures Division of the Secretary of State so the contested case may be docketed and an administrative law judge may be assigned to the case. In the contested case, the applicant shall have the burden of proof, and the Department's determination shall carry no presumption of correctness before the Board. The federal and state intergovernmental coordination agencies, and third persons who requested notification of the Department's degradation determination will be notified by the Department of the applicant's permit appeal. The intergovernmental coordination agencies and third persons may seek to intervene in the contested case in accordance with Tennessee Code Annotated § 4-5-310.

(~~eti~~) Information Requirements:

1. Applicants requesting an economic/social necessity determination to allow degradation under this provision must provide all information required in order for the Department to make a determination that reasonable alternatives to degradation are not feasible. Reasonable alternatives for discharges may include, but are not limited to, connection to an existing collection system, land application, water reuse, ~~or water recycling, or other treatment alternatives.~~ Applicants for permit renewals of previously authorized discharges, including upstream discharges, which presently degrade Exceptional Tennessee Waters, Tier II waters, shall submit as an alternatives analysis completed and accurate Worksheets A and B for public sector applicants or Worksheets A and G for private system applicants, except where these worksheets are inappropriate for the activity, in which case applicants may substitute materials that provide equivalent information. If needed, the Department may request the applicant to provide additional information. Alternatives analysis for new or additional degradation shall include, at a minimum, completed and accurate Worksheets A and B for public sector applicants or Worksheets A and G for private system applicants, except where these worksheets are inappropriate for the activity, in which case applicants may substitute materials that provide equivalent information. These forms are found in the EPA guidance document (Economic Guidance).
2. Additionally, to provide information to the Department regarding the applicant's claim of economic/social necessity, public sector applicants shall complete and submit, at a minimum, Forms O, P, Q, S, T, U, and AA, found in the EPA guidance document (Economic Guidance). Private sector applicants shall complete and submit, at a minimum, Forms O, R, V, W, X, Y, Z, and AB, found in the EPA guidance document (Economic Guidance). In instances when these worksheets are inappropriate for the activity, those applicants may substitute materials that provide equivalent information.

(~~djk~~) Public Participation:

1. NPDES - Applicants seeking permission to degrade Exceptional Tennessee Waters Tier II waters shall publish a notice in a newspaper of general distribution in the area of the



(Rule 1200-4-3-.06, continued)

degradation. The notice shall identify the proposed discharge, provide the specific location including affected waters, describe the general basis for requesting permission to degrade Exceptional Tennessee Waters Tier II waters, inform the public of their opportunity to provide comments, and that a local public meeting will be held by the Department unless the Department notifies the public of its determination that the discharge will not result in degradation. The applicant shall also post a sign within sight of a public road containing the same general information as the newspaper notice. A copy of the newspaper notice and proof of signage shall be provided to the Department. The public meeting held by the Department shall be near the proposed degradation.

2. ARAP/Section 401 Water Quality Certification - If the Department determines that an applicant's proposed activity will not result in degradation, it will so notify the public. If the Department determines that the proposed activity will degrade Exceptional Tennessee Waters Tier II waters, and the applicant intends to seek permission to do so, then the applicant shall publish a notice in a newspaper of general distribution in the area of the degradation. The notice shall identify the proposed activity, provide the specific location including affected waters, describe the general basis for requesting permission to degrade Exceptional Tennessee Waters Tier II waters, inform the public of their opportunity to submit comments, and that a local public meeting will be held by the Department. The public meeting held by the Department shall be near the proposed degradation.
3. Timing of Public Participation - Within 14 days of the Department being informed that an applicant will seek degradation, the applicant shall provide notice, as identified above, to the affected public. After the applicant provides public notice, the Department shall notify the public of the location, date and time of the public meeting in the area of degradation. Public notice by the Department shall occur at least 45 days prior to the meeting. For a proposed discharge, if the Department determines that the discharge will not result in degradation, it will so notify the public and in this circumstance, there will be no public meeting.

~~(e)(1)(i)~~ Intergovernmental Coordination - A notice concerning the request for an economic/social necessity determination shall be provided by the Department to federal and state agencies with jurisdiction over fish, wildlife, shellfish, plant and wildlife resources, parks, and advisory councils for historic preservation.

- (5) The Department may recommend to the Water Quality Control Board that certain waterbodies be designated as Outstanding National Resource Waters (ONRWs). These shall be high quality waters which constitute an outstanding National-national resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance.

Designation of ONRWs must be made by the Water Quality Control Board and will be accomplished in accordance with Section 69-3-105(a)(1) of the Tennessee Water Quality Control Act and through the appropriate rulemaking process.

In surface waters designated by the Water Quality Control Board as ONRWs, no new discharges, expansions of existing discharges, or mixing zones will be permitted unless such activity will not result in measurable degradation of the water quality. Existing water quality will be the criteria in these waters. Physical alterations that cause degradation to the ONRW will not be allowed. At time of permit renewal, previously authorized discharges, including upstream discharges, which presently degrade an ONRW, will be subject to alternatives analysis. Public participation for these existing discharges will be provided in conjunction with permitting activities.

(Rule 1200-4-3-.06, continued)

An assessment of environmental, economic, and social impacts will be prepared for each stream or stream segment proposed for ~~Tier 3~~ ONRW designation. The assessment content and process will be determined by the Division of Water Pollution Control but will contain sufficient data and information to inform the Water Quality Control Board about environmental, economic, and social impact of ONRW designation. Further, the process will provide for comprehensive public participation with a solicitation of position statements from appropriate local government agencies including but not limited to county and municipal governments, Soil Conservation Districts, Utility Districts, as well as other local, state, and federal agencies that may have responsibility for land and water resource management within the watershed of the proposed stream segment.

The following streams or portions of streams are designated as ONRW:

WATERBODY	PORTION DESIGNATED AS ONRW
(a) Little River	Portion within Great Smoky Mountains National Park.
(b) Abrams Creek	Portion within Great Smoky Mountains National Park.
(c) West Prong Little Pigeon River	Portion within Great Smoky Mountains National Park <u>upstream of Gatlinburg.</u>
(d) Little Pigeon River	From the headwaters within Great Smoky Mountains National Park <del>to the downstream</del> <u>to the confluence of Mill Branch, boundary of Pittman Center.</u>
(e) Big South Fork Cumberland River	Portion within Big South Fork National River and Recreation Area.
(f) Reelfoot Lake	Tennessee portion of the lake and its associated wetlands.

The portion of the Obed River that is designated as a federal wild and scenic river as of June 22, 1999 is designated as ONRW tier-3; provided however, that if the current search for a regional water supply by the Cumberland Plateau Regional Water Authority results in a determination that it is necessary to utilize the Obed River as its source of drinking water, for that purpose the Obed shall be designated as an Exceptional Tennessee Water tier-2 and any permit issued for that project, whether state, federal, or otherwise, shall be considered under the requirements for Exceptional Tennessee Waters. tier-2.

- (56) All discharges of municipal sewage, industrial waste, or other wastes shall receive the greatest degree of effluent reduction which the Commissioner of the Tennessee Department of Environment and Conservation determines to be achievable through application of stringent effluent limitations and schedules of compliance either promulgated by the Water Quality Control Board; required to implement any applicable water quality standards, including where practicable, a standard permitting no discharge of pollutants; necessary to comply with a State Water Quality Plan; or necessary to comply with other State or Federal laws or regulations.
- (67) In implementing the provisions of these rules as they relate to interstate streams, the Commissioner of the Tennessee Department of Environment and Conservation and the Tennessee Water Quality Control Board will cooperate with the appropriate Federal Agency in order to assist in carrying out responsibilities under the Federal Water Pollution Control Act, as amended.



(Rule 1200-4-3-.06, continued)

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule certified June 7, 1974. Amendment filed December 1, 1975; effective December 30, 1975. Amendment filed November 25, 1977; effective December 26, 1977. Amendment filed March 30, 1983; effective April 29, 1983. Amendment filed July 16, 1991; effective August 30, 1991. Amendment filed May 16, 1995; effective July 30, 1995. Amendment filed July 13, 1999; effective October 11, 1999. Amendment filed October 24, 2003; effective January 7, 2004.

**1200-4-3-.07 GROUND WATER CLASSIFICATION.**

- (1) **Purpose and Intent.** It is one of the primary goals of the Tennessee Water Quality Control Act, T.C.A. 69-3-101 et. seq. (the "Act") to protect our valuable ground water resource. This rule classifies ground water across the state based on the factors stated in the Act, T.C.A. 69-3-105(a)(2) and establishes ground water quality criteria. The quality of ground water varies in Tennessee, some aquifers, or portions thereof, produce water with sufficient quality and quantity to be used by our citizens directly as a drinking water supply, other aquifers, or portions thereof, produce water in sufficient quantities to be used as a water supply but the water requires treatment before it can be used as such. Finally, some aquifers, or portions thereof, either have levels of naturally occurring constituents that make the resource unusable as a drinking water supply or the aquifer does not produce enough water to be used as a drinking water supply. The Board recognizes these rules apply to both permitting activities and response actions, as the term response is defined rule 1200-1-13-.02(1)(ff). The abatement of pollution is a goal of the Act and these rules. These rules provide appropriate flexibility in the regulatory process to protect our ground water resource. Allowing the beneficial use and/or reuse of brownfield areas for some permitted waste management activities reduces the use of greenfield areas for such purposes; which will conserve and protect our environment. However, the Site Specific Impaired classification does not apply in the context of activities involving areas with no ground water contamination. When ground water has been polluted by human activity, these rules set forth the procedures and standards for any necessary ground water remediation. In certain cases, due to site specific conditions, it may not be technologically feasible to clean up a site and/or the costs associated with such clean up or other factors may substantially outweigh the benefits of the restored resource. These rules establish a Site Specific Impaired classification that may apply in such areas after a thorough evaluation of feasibility of remediation and the potential risk of allowing contaminants to remain in ground water. The Board recognizes that several Divisions within the Department have a role in protecting ground water resources. It is not the intent of these rules to change the responsibilities of those programs. It is, however, the intent of these rules to provide a uniform basis for decisions involving ground water that may be applied by all Divisions of the Department. The Board does not intend these rules to affect in any way the ability of the State to seek natural resource damages from responsible parties when ground water has been contaminated by human activity.
- (2) **The ground water of the State is classified as follows:**
  - (a) **Special Source Ground Waters** - This is ground water with exceptional quality and quantity, which may serve as a valuable source for water supply or which is ecologically significant. Special source ground water is vulnerable to contamination. Through the rulemaking process, the Water Quality Control Board will amend this rule to include the specific area of an aquifer which receives this designation. The Board shall clearly define the horizontal and vertical boundaries of ground water designated as Special Source Ground Water. In making this decision, the Board shall consider the following factors as submitted by the applicant:
    1. The vulnerability of the aquifer, or portion thereof, to contamination due to hydrogeologic characteristics;
    2. The number of persons or the proportion of the population using the ground water as a drinking water supply;
    3. A comparison of the economic, social and environmental benefits and costs of maintaining the special source ground water with the economic, social and environmental benefits and costs of replacing the special source ground water;
    4. An evaluation of the ecological and environmental impact should the quality of the special source ground water be compromised; and
    5. Other pertinent information as deemed necessary by the petitioner or the Department.

(Rule 1200-4-3-.07, continued)

Because such action is a rulemaking procedure, public input may be made as provided in the Uniform Administrative Procedures Act, T.C.A. 4-5-201 et. seq., but not as a contested case under T.C.A. 4-5-301 et. seq.

- (b) **General Use Ground Water** - Except for aquifers, or portions thereof, that have been designated as Special Source Ground Water, all ground water which, as it is encountered, has naturally occurring levels of Total Dissolved Solids of 1000 parts per million or less is classified as General Use Ground Water upon certification by the Commissioner; provided the aquifer or portion of an aquifer can produce an average yield of at least one (1) gallon per minute over a twenty four (24) hour period in a properly constructed six (6) inch water well or a well of alternate construction and equivalent yield approved by the Department. The well shall have three well volumes purged before the twenty four (24) hour pump test begins. Any ground water which is used as a source of drinking water is also classified as General Use regardless of the well yield or the ground water's natural quality, unless that ground water meets the requirements for the Site Specific Impaired classification in 1200-4-3-.07(2)(d).
- (c) **Limited Use Ground Water** - This is ground water which is not currently a source of drinking water and is classified as Limited Use ground water upon certification by the Commissioner:
  - 1. Ground water with naturally occurring levels of Total Dissolved Solids above 1,000 ppm but less than 3,000 ppm; or
  - 2. Any aquifer or portion of an aquifer which is not capable of producing an average yield of one (1) gallon per minute over a twenty four (24) hour period in a properly constructed six (6) inch diameter water well or a well of alternate construction and equivalent yield approved by the Department. The well shall have three well volumes purged before the twenty four (24) hour pump test begins; or
  - 3. Ground water contaminated by human activity previous to November 19, 1980 if:
    - (i) there are no liable parties as defined in T.C.A., 68-212-202 (3) (B), (C), or (D); and
    - (ii) the current property owner did not cause the ground water contamination.

When ground water is encountered and certified by the Commissioner to be Limited Use as described above, the areal extent of the Limited Use ground water shall be delineated. This means the vertical and horizontal boundaries shall be established by sampling from properly constructed ground water monitoring wells, existing water wells and/or springs or by use of other appropriate means; including, but not limited to, topographical evaluations, dye traces, geologic and hydrologic modeling, etc. The horizontal boundaries of the Limited Use ground water cannot extend beyond the perimeter investigated as described above. The vertical boundaries of the Limited Use ground water can not exceed the depth of the ground water investigated as described above. Figures which clearly depict the horizontal and vertical boundaries of the Limited Use ground water must be submitted with the plans/reports required by the response action or permitting action.

Any ground water used as a drinking water source, at the time of classification, regardless of its natural quality or the aquifer yield cannot be classified as Limited Use ground water.

(Rule 1200-4-3-.07, continued)

- (d) **Site Specific Impaired Ground Water-** This is ground water that has been contaminated by human activity and it is not technologically feasible to remediate the ground water to the level required by other classifications or if the costs of such a remediation substantially outweigh the benefits of the restored resource. Ground water shall be classified as Site Specific Impaired upon certification by the Commissioner. The process used to certify ground water as Site Specific Impaired is stated in 1200-4-3-.09.

1. When ground water is encountered and certified by the Commissioner to be Site Specific Impaired as described above, the areal extent of the Site Specific Impaired ground water shall be delineated. This means the vertical and horizontal boundaries shall be established by sampling from properly constructed ground water monitoring wells, existing water wells and/or springs or by use of other appropriate means; including, but not limited to, topographical evaluations, dye traces, geologic and hydrologic modeling, etc. The horizontal boundaries of the Site Specific Impaired ground water cannot extend beyond the perimeter investigated as described above. The vertical boundaries of the Site Specific Impaired ground water can not exceed the depth of the ground water investigated as described above. Figures which clearly depict the horizontal and vertical boundaries of the Site Specific Impaired ground water must be submitted to the Department in the plans/reports required by Rule 1200-4-3-.09.

- (e) **Unusable Ground Water -** The following ground water is classified as Unusable Ground Water upon certification by the Commissioner:

1. Ground water that is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation under Chapter 1200-4-6, Underground Injection Control, to contain minerals or hydrocarbons that, considering their quality and location are expected to be commercially producible; or
2. Ground water at a depth and location which makes its use as a water supply economically or technically impractical; and
3. Ground water with naturally occurring total dissolved solids of more than 3,000 ppm; or
4. Ground water that was contaminated by human action in connection with the specific activity referenced below which:
  - (i) is located over a Class III well mining area subject to subsidence or catastrophic collapse; or
  - (ii) has been used to receive fluids and other substances from a Class I injection well, provided the Class I well was approved by the Department on or prior to September, 1985; or
5. Ground water within the area excavated during the process of mining coal or other minerals pursuant to valid permits. Ground water beyond the excavation area will be classified as it is encountered as described elsewhere in this rule. Ground water which moves from the excavated area and becomes surface water shall be regulated as described in the surface water classification and criteria in these rules.

When ground water is encountered and certified by the Commissioner to be Unusable as described above, the areal extent of the Unusable ground water shall be delineated. This means the vertical and horizontal boundaries shall be established by sampling from properly constructed ground water monitoring wells, existing water wells and/or springs

(Rule 1200-4-3-.07, continued)

or by use of other appropriate means; including, but not limited to, topographical evaluations, dye traces, geologic and hydrologic modeling, etc. The horizontal boundaries of the Unusable ground water cannot extend beyond the perimeter investigated as described above. The vertical boundaries of the Unusable ground water can not exceed the depth of the ground water investigated as described above. Figures which clearly depict the horizontal and vertical boundaries of the Unusable ground water must be submitted with the plans/reports required by the response action or permitting action. Any aquifer or portion thereof classified for the placement of fluids or other substances by underground injection on or prior to September 1985 shall retain this classification and shall not be subject to the requirements of rules 1200-4-3-.09 and .10.

- (f) After the ground water in any specific location has been classified under these rules, a rulemaking action by the Water Quality Control Board will be required to reclassify that ground water.

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule filed June 28, 1999; effective September 11, 1999. Amendment filed July 13, 1999; effective October 11, 1999.

#### 1200-4-3-.08 GROUND WATER CRITERIA.

The water quality criteria for the different classes are as follows:

(1) Special Source Ground Water:

- (a) except for naturally occurring levels, shall not contain constituents in excess of the concentrations listed in Table 1; and
- (b) except for naturally occurring levels, shall not contain constituents at levels exceeding those in Rule 1200-4-3-.03 except that the criteria for fish and aquatic life and recreational use shall not apply.

(2) General Use Ground Water:

- (a) except for naturally occurring levels, shall not contain constituents in excess of the concentrations listed in Table 1; and
- (b) except for naturally occurring levels, shall not contain constituents at levels exceeding those in Rule 1200-4-3-.03 except that the criteria for fish and aquatic life and recreational use shall not apply

(3) Limited Use Ground Water:

- (a) except for naturally occurring levels, shall not contain constituents at levels exceeding those for the use classifications in Rule 1200-4-3-.03 other than domestic water supply, fish and aquatic life and recreational use; and
- (b) except for naturally occurring levels, in areas where historical contamination causes certain constituents to exceed the levels in rule 1200-4-3-.03, except for the criteria for domestic water supply, fish and aquatic life and recreational use, shall not contain those constituents at levels higher than those background levels; and
- (c) shall contain no substances, whether alone or in combination with other substances, that are toxic, carcinogenic, mutagenic or teratogenic, other than those of natural origin, at levels and conditions which pose an unreasonable risk to the public health

(Rule 1200-4-3-.08, continued)

## (4) Site Specific Impaired Ground Water:

- (a) except for naturally occurring levels, shall contain no substances, whether alone or in combination with other substances, that are toxic, carcinogenic, mutagenic or teratogenic, other than those of natural origin, at levels and conditions which pose an unreasonable risk to public health or the environment;
- (b) shall contain no other constituents which pose an unreasonable risk to the public health or the environment; and
- (c) shall contain no constituents at levels that will prevent ground waters beyond the point of classification change from meeting the classification and criteria for those waters.
- (d) Site Specific Impaired Criteria shall only apply to ground water that has been certified through the process set forth in Rule 1200-4-3-.09.

## (5) Unusable Ground Water:

- (a) except for naturally occurring levels, shall contain no substances, whether alone or in combination with other substances, that are toxic, carcinogenic, mutagenic or teratogenic, other than those of natural origin, at levels and conditions which pose an unreasonable risk to the public health; and
- (b) shall contain no other constituents which pose an unreasonable risk to the public health

Table 1. Inorganic Criteria for General Use Ground Water

<u>Constituent</u>	<u>Concentration</u>
Aluminum	0.2 mg/l
Arsenic	0.05 mg/l
Asbestos	7,000,000 fibers/l
Barium	2.0 mg/l
Cadmium	0.005 mg/l
Chloride	250 mg/l
Chromium	0.1 mg/l (Total)
Copper	1.0 mg/l
Fluoride	4.0 mg/l
Iron	10.0 mg/l
Lead	0.05 mg/l
Manganese	0.5 mg/l
Mercury	0.002 mg/l
Nitrate	10.0 mg/l as Nitrogen
Nitrite	1.0 mg/l as Nitrogen
Total Nitrate & Nitrite	10.0 mg/l (as Nitrate)
Selenium	0.05 mg/l
Silver	0.1 mg/l
Sulfate	500 mg/l
TDS	1000 mg/l
(Total Dissolved Solids)	
Zinc	5.0 mg/l

(Rule 1200-4-3-.08, continued)

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule filed June 28, 1999; effective September 11, 1999. Amendment filed July 13, 1999; effective October 11, 1999.

**1200-4-3-.09 SITE SPECIFIC IMPAIRED CLASSIFICATION APPLICATION PROCESS.**

- (1) Any person who encounters ground water that may meet the requirements for Site Specific Impaired, may apply for the ground water at the site to be certified by the Department as meeting those requirements, using the process set forth in this rule. Any costs involved in making the application shall be borne by the applicant. The application shall include the following, unless it is determined by the Department in writing that the site conditions render any of them unnecessary:
  - (a) An assessment of the horizontal and vertical extent of the contamination;
  - (b) An evaluation of the hydrogeology of the area including but not limited to the ground water flow rate and direction, permeability, recharge area, ground water classification and location of local water wells, springs and seeps;
  - (c) An evaluation of the area geology including but not limited to soil type, soil permeability, soil porosity, depth to bedrock, identification of geologic formations;
  - (d) A description of the corrective actions or response actions taken or proposed;
  - (e) The chemical characteristics of the constituents(s) including but not limited to the constituent's solubility, mobility, toxicity, and carcinogenicity, the nature of and the level of constituents to remain or be present in the ground water as well as the calculations and rationale used in the determination;
  - (f) a feasibility study which evaluates clean-up alternatives, the cost, and the time to complete each alternative;
  - (g) An evaluation of current and future ground water use within a (1/2) one-half mile radius of the contaminant plume; in karst areas the impact of conduit flow shall be evaluated;
  - (h) An evaluation of current and future land uses within a (1/2) one-half mile radius of the contaminant plume;
  - (i) An evaluation of the potential of the constituent to migrate through soil and ground water to:
    1. homes;
    2. buildings;
    3. surface waters;
    4. subsurface utilities; and
    5. adjacent properties;
  - (j) A description of any existing or proposed monitoring program to observe constituent levels in soil and ground water;
  - (k) Evaluation of the existing or anticipated actual exposure pathways (inhalation, ingestion, dermal contact, etc.) of the constituents and an assessment of the human health risks presented by exposure to the constituents as well as the impact, if any, of the constituents on fish and aquatic life pursuant to 1200-4-3;

(Rule 1200-4-3-.09, continued)

- (l) Consideration of the classification in Rule 1200-4-3-.07 that would apply to the ground water at the site if it were not contaminated.
  - (m) Analysis of the technological feasibility of cleaning up the ground water to the level necessary for the criteria that would apply to the ground water at the site if it were not contaminated and a comparison of the costs of investigation and cleanup and/or any other relevant factors with the benefits of the restored resource;
  - (n) A description of how and when the contamination occurred, if known; and
  - (o) Other items as requested by the Department associated with the evaluation of the application to certify ground water as Site Specific Impaired.
- (2) The Department will issue a public notice, unless a process for public notice and input is required by other applicable regulations (in such case that regulation will be followed), when an application to certify ground water as Site Specific Impaired has been reviewed and a tentative decision to approve it has been made. The Department will conduct a public hearing concerning the application if the issue generates substantial public interest. The Department will explain the reasons it is proposing to certify the ground water as meeting the requirements for the Site Specific Impaired classification and will consider all written and oral comments received.
- (3) In the evaluation of an application to certify ground water as Site Specific Impaired, the Commissioner or this Board shall consider:
- (a) the extent of any threat to human health or safety;
  - (b) the extent of damage to the environment;
  - (c) technology commercially available to accomplish restoration;
  - (d) a comparison of the environmental and economic costs and benefits to be derived from ground water quality restoration with the environmental and economic costs and benefits to be derived from classification as Site Specific Impaired;
  - (e) the point of classification change;
  - (f) other appropriate information presented in the application.

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule filed June 28, 1999; effective September 11, 1999. Amendment filed July 13, 1999; effective October 11, 1999.

#### 1200-4-3-.10 POINT OF CLASSIFICATION CHANGE.

- (1) "Point of Classification Change" shall mean the boundary location(s) within the relevant zone of an aquifer between the portion of the aquifer that is classified as Site Specific Impaired and any other classification. Compliance with the applicable criteria at this point shall be determined using sampling data, ground water modeling or other allowable mechanisms.
- (2) All areas with ground water classified as Site Specific Impaired must be owned or controlled by the person(s) subject to ground water cleanup or permitting obligations and/or subject to appropriate deed restrictions or other institutional controls. All locations outside the point of classification change must not exceed the applicable ground water criteria beyond the point of classification change.



(Rule 1200-4-3-.10, continued)

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule filed June 28, 1999; effective September 11, 1999. Amendment filed July 13, 1999; effective October 11, 1999.

**1200-4-3-.11 APPEALS.**

- (1) Any applicant aggrieved by the actions of the Department in applying Rules 1200-4-3-.07 through 1200-4-3-.10 may petition this Board for a hearing provided a written petition is submitted to and received by the Commissioner;
  - (a) within thirty (30) days of certification of ground water or disapproval of an application for certification of ground water.; or
  - (b) within thirty (30) days following the expiration of the one hundred and twenty (120) calendar days from receipt of an application for certification of ground water as Site Specific Impaired if the Department has not made written request for additional information.
- (2) The Commissioner's determination shall be final and not subject to review unless the written petition for hearing is submitted and received within this time frame. The written petition must set forth the basis for the appeal as required by the Administrative Procedures Act, T.C.A. Section 4-5-101 et. seq., and the rules promulgated thereunder, particularly Rule 1360-4-1-.05.

**Authority:** T.C.A. §§4-5-201 et seq., and 69-3-105. **Administrative History:** Original rule filed June 28, 1999; effective September 11, 1999. Amendment filed July 13, 1999; effective October 11, 1999.

(Rule 1200-4-3-.10, continued)

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Signature of the agency officer or officers directly responsible for proposing and/or drafting these rules:

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 Mr. John McClurkan, Board Member

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 Dr. Robert Taylor, Board Member

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 Ms. Ann Murray, Board Member

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 Mr. Larry Clark, Board Member

---

 Mr. James Haynes, Board Member

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 Mr. Sidney Johnson, Board Member

---

 Ms. Jill Davis, Board Member

---

 Mr. Frank McGinley, Board Member

---

 Mr. Eddie Wayne Floyd, Board Member

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 Mr. Bob Wormsley, Board Member

The roll-call vote by the Water Quality Control Board on these rulemaking hearing rules was as follows:

	<u>Aye</u>	<u>No</u>	<u>Abstain</u>
Mr. John McClurkan	_____	_____	_____
Dr. Robert Taylor	_____	_____	_____
Ms. Ann Murray	_____	_____	_____
Mr. Larry Clark	_____	_____	_____
Mr. James Haynes	_____	_____	_____
Mr. Sidney Johnson	_____	_____	_____
Ms. Jill Davis	_____	_____	_____
Mr. Frank McGinley	_____	_____	_____
Mr. Eddie Wayne Floyd	_____	_____	_____
Mr. Bob Wormsley	_____	_____	_____

(Rule 1200-4-3-.10, continued)

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I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Water Quality Control Board on the 22nd day of July, 2003.

Further, I certify that these rules are properly presented for filing, a notice of rulemaking hearing having been filed in the Department of State on the 31st day of January, 2003, and such notice of rulemaking hearing having been published in the February 15, 2003 issue of the Tennessee Administrative Register, and such rulemaking hearings having been conducted pursuant thereto on the 17th, 18th, 24th, 25th, 27th, and 31st days of March, 2003 and the 1st and 3rd days of April, 2003.

\_\_\_\_\_  
Chairperson, Tennessee Water Quality Control Board

Subscribed and sworn to before me this the \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_.

\_\_\_\_\_  
Notary Public

My commission expires on the \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_.

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

\_\_\_\_\_  
PAUL G. SUMMERS  
Attorney General and Reporter of the State of Tennessee

The rulemaking hearing rules set out herein were properly filed in the Department of State on the \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_ and will become effective on the \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_.

\_\_\_\_\_  
RILEY C. DARNELL  
Secretary of State of the State of Tennessee

By: \_\_\_\_\_

(Rule 1200-4-3-.10, continued)

### **IMPORTANT NOTE:**

The Department of Environment and Conservation has provided the following document as a means to assist public participation in the triennial review of water quality standards. Development of any regulation, including the General Water Quality Criteria (1200-4-3) and the Stream-use Classifications for Surface Waters (1200-4-4), is governed by the Tennessee Uniform Administrative Procedures Act.

While it is the department's hope that public participation will continue in the development of clean water goals, release of this document should not be taken to represent a reopening of the formal public comment period. Additionally, the rulemaking hearing before the Tennessee Water Quality Control Board is not a public hearing on these rules pursuant to the Uniform Administrative Procedures Act 4-5-201 et. seq. However, the Water Quality Control Board may, at its discretion, allow attendees at the meeting to speak concerning the proposed changes.

The department reserves the right to make revisions to these documents prior to the rulemaking hearing.

Questions about this process can be directed to Greg Denton at (615) 532-0699 or [Gregory.denton@state.tn.us](mailto:Gregory.denton@state.tn.us)



## **DRAFT**

### **2006 Triennial Review of Water Quality Standards**

#### **Summary of Public Comments and Tennessee Water Quality Control Board (WQCB) Responses**

(Note: In some instances, public comments have been summarized in order to group similar observations by multiple reviewers.)

##### **A. GENERAL COMMENTS: Public Participation Process**

**Comment A-1.** *The comment period should be extended.*

**Response:** In response to this comment, we extended the review period an additional two weeks.

**Comment A-2.** *TDEC's notice procedures are inadequate.*

**Response:** The formal rulemaking hearing notice was published in the Tennessee Administrative Register on November 15, 2005. Persons on the division's public notice list, maintained for people wishing to receive individual notifications about regulation changes, were sent a notice in the mail about the proposed revisions. (Persons can be added to this mailing list upon request.)

In addition to the administrative notices, special electronic notice was sent to persons who attended one of the 14 public hearings held during the last triennial review. We placed legal notices in local newspapers and posted the notice on our webpage. We believe that we have not only met the letter, but also the spirit of the notification procedures.

**Comment A-3.** *TDEC's public hearings should be held in the evening.*

**Response:** Multiple public hearings were held during this triennial review and several were held in the evening. We try to have a mix of evening and daytime hearings to accommodate different schedules. Commenters can also submit written comments if they are unable to attend a hearing in their area.

**Comment A-4.** *TDEC's public hearings should be centrally located in the targeted area.*

**Response:** We try to locate hearings in the different areas of the state. We do the best we can to pick convenient locations, but are limited to sites where we do not have to pay for the use of facilities.

**Comment A-5.** *I would like a direct response from TDEC regarding my comments.*

**Response:** Given the volume of comments, it is not feasible to respond to each letter and email individually. Additionally, we believe that an important part of the participation process is for the public to be able to read the responses the department prepares for the issues raised by other commenters. We are making this document available on our website.

## **B. GENERAL COMMENTS: Legal Considerations and Federal Requirements**

**Comment B-1.** *These revisions may put Tennesseans at a competitive disadvantage with other states if our criteria are more stringent than EPA requirements. Tennessee should not promulgate any criteria not specifically required by EPA.*

**Response:** The foundation of our proposed revisions is the existing national numeric criteria that are adopted by all states, not just Tennessee. It is difficult to respond to the second comment without knowing which criterion the statement is directed at. Every change we have proposed, required or not, was because we felt that it reflected the best science and improved our ability to set or implement clean water goals.

**Comment B-2.** *For every individual revision, the department should state whether or not the change was required by EPA.*

**Response:** It is not feasible to provide this information in the detail requested. In general, Tennessee's numeric criteria are based on the national criteria published by EPA. For 304(a) pollutants, we are required to adopt either EPA's national recommendations, or provide a science basis for a different number, a difficult task as Tennessee generally does not undertake primary research into the toxicity or human health effects of substances.

Stream use classifications are assigned by the Water Quality Control Board, although these designations are required to be consistent with Clean Water Act goals (fishable/swimmable waters). Our current antidegradation implementation rule, while based on a framework of federal requirements, is the result of changes to the prior rule made during a series of consensus-building discussions in 2003 between multiple citizen and regulated community representative groups.

**Comment B-3.** *The proposed changes do not help the department accomplish its legal mandate to identify and restore impaired waters.*

**Response:** The commenter has not specified a revision in voicing this concern. We consider the changes we have proposed to reflect not only the most current science, but also our years of experience running the regulatory program. Proper setting of standards is a critical tool in our efforts to identify and restore impaired waters as well as to fulfill our other statutory duties.

**Comment B-4.** *Clean water goals will not do much good if the department does not have enough staff to enforce them.*

**Response:** Good water quality goals will help at every step of the regulatory process, including any necessary enforcement actions.

**Comment B-5.** *EPA recommends that the criteria for carcinogens be calculated at a risk level of  $10^{-6}$ , or one cancer death per 1,000,000 persons. Tennessee uses criteria based on a  $10^{-5}$  risk level. This should be changed to the level EPA recommends.*

**Response:** EPA recommends risk for carcinogens in the range of  $10^{-5}$  to  $10^{-6}$ . Over 25 years ago, after considering the many conservative assumptions included in criteria calculations based on short-term tests with laboratory animals, Tennessee decided to go with  $10^{-5}$ .

**Comment B-6.** *Tennessee's water quality standards should clearly state that all sources of pollutants are regulated.*

**Response:** Water quality standards are goals for Tennessee's waters and do not differentiate between various sources. The extent of the department's regulatory authority is established in the Water Quality Control Act and removal of statutory exemptions would require changing the act.

### **C. GENERAL COMMENTS: Antidegradation Policy (including *de minimis*)**

**Comment C-1.** *The department should not proceed with changes to the antidegradation policy until it can provide maps of all high quality streams and identify permitted dischargers on each.*

**Response:** A mapping tool for permitted dischargers is already available at the department's interactive GIS-based mapping resource on its homepage. It can be accessed at <http://www.state.tn.us/environment/wpc/>. EPA's web-based resource called "Surf Your Watershed" also has mapping capabilities for discharger locations.

We previously provided a list of the known high quality waters in Tennessee and have set as a goal to develop maps illustrating these streams. However, rulemaking must proceed in order to meet statutory deadlines. We would be happy to assist any member of the public having difficulty locating high quality waters.

**Comment C-2.** *The antidegradation policy should not be revised in such a way to make it more stringent.*

**Response:** We have proposed a set of revisions that adds clarification to the procedures staff use to determine which category a stream goes into for purposes of antidegradation implementation. Some of the changes to the characteristics for Exceptional Tennessee Waters increase the number of streams fitting into the category over those that were Tier II in the existing rules, but other changes have the opposite effect. We do not anticipate a significant change overall. Additionally, we have maintained the protection strategy for each category at the existing levels.

**Comment C-3.** *The antidegradation policy should not be revised in such a way to make it less stringent.*

**Response:** Same response as C-2.

**Comment C-4.** *The changes to the antidegradation policy make it more stringent than EPA requires.*

**Response:** Same response as C-2.

**Comment C-5.** *The changes to the antidegradation policy make it less stringent than EPA requires.*

**Response:** The existing (2003) antidegradation provisions were approved by EPA as being consistent with federal requirements. As we are not proposing to change the protection levels, we believe that EPA will approve the other revisions.

**Comment C-6.** *If the status of a stream under the antidegradation policy is unknown, then the default presumption should be that it is high quality.*

**Response:** Our current antidegradation implementation procedure is based on the need to accurately characterize the proper category for a stream before considering authorization of an activity. Some of the revisions we have proposed would relieve the administrative burden on the state by simplifying the characteristics of high quality waters.

**Comment C-7.** *If the status of a stream under the antidegradation policy is unknown, then the default presumption should be that it is not high quality.*

**Response:** An antidegradation policy with a default presumption that streams are not high quality would invite federal disapproval of Tennessee's implementation procedures. We cannot recommend this course of action.

**Comment C-8.** *The changes to the antidegradation policy places an unfair burden on the business community in Tennessee.*

**Response:** The state may not authorize degradation without justifying that the change in water quality is in the public interest. If the commenter has a suggestion on how the administrative burden might be reduced, while maintaining the state's ability to make a proper judgment concerning degradation, we would be happy to consider it. However, the commenter should be aware that the department does not consider the administrative burden to have been changed by the proposed revisions.

**Comment C-9.** *Why is alternatives analysis required?*

**Response:** The state cannot determine that degradation is in the public's interest based on social and economic necessity unless an examination of alternatives has occurred. When an applicant submits the analysis, it becomes available for public review and comment during the permitting process.



**Comment C-10.** *The requirement that an alternatives analysis be done places a burden on the regulated community that represents an unfunded mandate that goes beyond federal requirements. Under state law, the state is required to fund this activity, a fact that should be reflected in the regulation. The regulation should also identify the method that the state will use to distribute monies to the regulated community for this unfunded mandate.*

**Response:** EPA requires that alternatives analysis be part of an antidegradation review. Therefore, this does not go beyond the federal requirement. We do not believe TCA § 4-5-226(l) is applicable.

**Comment C-11.** *The department should not proceed with changes to the antidegradation policy until a cost/benefit study has been done.*

**Response:** The cost and benefits of the alternatives for each individual project will be evaluated as part of the antidegradation process. Where the project is in the economic or other interest of the public, degradation can be authorized, except in ONRWs or impaired waters. See also the response to comment C-2.

**Comment C-12.** *The antidegradation policy should be used to protect Tennessee's aquatic diversity, plus species with special status.*

**Response:** We agree. The proposed characteristics for Exceptional Tennessee Waters include measures of biodiversity and the presence of threatened and endangered species.

**Comment C-13.** *Mitigation should not be mentioned in the regulation as it has not been shown to adequately replace lost resource values.*

**Response:** A failure of mitigation projects to replace lost resource values in any specific setting is a permitting or enforcement issue, rather than a clean water goal setting issue.

**Comment C-14.** *The names of the protection levels under the antidegradation policy should not be changed.*

**Response:** We understand this comment, but feel that the old naming structure based on "tiers" led to a number of chronic misconceptions. The new system, while not perfect, at least goes in the direction of clearing up some of the confusion. We would be happy to consider other category names that would reflect a change from the previous nomenclature.

**Comment C-15.** *De minimis impacts should not be authorized in ONRWs.*

**Response:** The protection level for ONRWs requires that new discharges, expansions of existing discharges, or degradation be prohibited. We will add the word "unmeasurable" to 1200-4-3-.06(5) in order to reinforce the idea that only very small water quality changes can be authorized in ONRWs. This change will make it clear that the allowable impact to ONRWs is less than *de minimis*, but more than a molecule or two.

**Comment C-16.** *Tennessee's streams and lakes are widely used for recreation. New discharges of domestic wastewater should not be allowed without a full antidegradation review.*

**Response:** Public health agencies have long advised against recreation near outfalls from domestic wastewater treatment facilities. Some pathogens are known to be resistant to conventional disinfection techniques. We agree with the commenter that new domestic wastewater discharges should receive a full antidegradation review. We will change the definition of *de minimis* so that it does not apply to these discharges.

**Comment C-17.** *All the department's general permits should be considered de minimis in effect and subject to no further antidegradation review.*

**Response:** We agree that activities authorized under general permit can represent *de minimis* levels of impact. Our present policy is that if the general permit was public noticed and reviewed as representing only a *de minimis* level of impact, then an antidegradation review is not required for coverages issued under those permits. However, not all of the department's general permits have included a *de minimis* determination and undergone public review on that basis.

**Comment C-18.** *Citizens should be able to suggest protection levels for individual streams, if the department has not already made a determination.*

**Response:** We would be happy to accept these suggestions, subject to verification.

**Comment C-19.** *Department staff are not qualified to make social and economic necessity determinations for Exceptional Tennessee Waters.*

**Response:** For that reason have incorporated EPA's guidance to how best to make these decisions.

This issue came up when the environmental and industry groups met in 2003 to establish the current consensus implementation procedure for antidegradation. In identifying the department as the first level for this economic and social necessity decision process, the groups expressed confidence in our ability to make these determinations.

Where groups or individuals feel that any specific determination has been made incorrectly or improperly, the appeal or declaratory order processes can be initiated.

**Comment C-20.** *The burden of proof should be on an applicant to demonstrate that the proposed degradation is in the public interest.*

**Response:** We agree and consider that to be the plain meaning of the language in the regulation.

**Comment C-21.** *Location-based requirements for identifying high quality waters are contrary to the Tennessee Water Quality Control Act.*

**Response:** In the federal regulations, placed-based settings such as parks are specifically mentioned as being likely locations to find high quality waters. Previous iterations of Tennessee's standards also refer to parks as places where high quality water is found, so we do not see the proposed changes to reflect a position change on this. We see nothing in the Act to the contrary.

**Comment C-22.** *Just because a stream is on public lands does not mean that its water quality is automatically good. The department should evaluate all streams on public lands and not require a full antidegradation review on those that do not have exceptional chemical quality or biological integrity.*

**Response:** We agree that not all streams on public lands have great chemical quality or biological diversity. However, high quality status is not solely based on the water quality factors the commenter mentions, but rather in large part on scenic values or public recreation. Additionally, it would be contrary to our goal of lessening the department's administrative burden to go back to a system in which chemical and biological data must be collected on every stream in which this determination must be made.

**Comment C-23.** *In those cases where mineral rights under state lands are owned by others, the Exceptional Tennessee Waters provision might prevent mining.*

**Response:** The protection level assigned to Exceptional Tennessee Waters does not prohibit degradation if it is in the public's interest that it be authorized.

**Comment C-24.** *The antidegradation policy might be used to limit activities such as remining, which can actually improve the water quality in an impacted stream.*

**Response:** Only activities that cause degradation require a full antidegradation review.

**Comment C-25.** *Placement of a stream on the Exceptional Tennessee Waters list affects the permit limits given to potential dischargers, much as the 303(d) List does. For that reason, any Exceptional Tennessee Waters should be specifically listed in regulation so that the board can promulgate them.*

**Response:** It is not the list itself that affects permit limits, it is the criteria for being on the list. These are in the rule. This is no different than the way all other water quality standards work. The list of Tennessee Exceptional Waters is provided, in this case, for educational purposes to show how the rule applies to certain waters across the state.

Further, we believe that EPA would disapprove any system that depends on specific listing of high quality waters in order to implement antidegradation provisions in those waters. Such an approach has been attempted without success in other states.

**Comment C-26.** *The department should identify high quality waters based on a 12-digit hydrologic unit, rather than the segment-by-segment approach currently used.*

**Response:** For now, the segment-by-segment approach provides the type of site-specific approach needed for considering activities that degrade only one spot, such as habitat alterations. Perhaps we could consider another approach in the future if it were considered a better approach for resource management.

**Comment C-27.** *"Status quo" discharge renewals should not be required to do alternatives analysis. The regulation should be clear that a simple reissuance that does not represent additional loadings of pollutants is not degradation.*

**Response:** We believe that it is appropriate permitting procedures to have all reissuances consider whether or not any of the factors controlling alternatives

have changed since their original permit was issued. For example, small dischargers should determine whether sewer service has been extended to their area and consider connecting if it has.

**Comment C-28.** *The antidegradation policy should be clear that impacts to downstream waters must be considered.*

**Response:** All activities that have a greater than *de minimis* impact to Exceptional Tennessee Waters must go through the antidegradation review process, whether the activity occurs in the identified segment or upstream.

**Comment C-29.** *The department's permitting rules should be modified to include additional information concerning alternatives analysis.*

**Response:** We will consider this change during the next revisions of 1200-4-5.

#### **D. GENERAL COMMENTS: Miscellaneous**

**Comment D-1.** *1200-4-3 in its entirety should be rewritten in such a way to make it more understandable.*

**Response:** We would be happy to consider specific wording revisions.

**Comment D-2.** *1200-4-3 should include a map of Tennessee's subecoregions.*

**Response:** We agree in spirit, but feel that such a map would not be helpful at the scale possible on an 8.5 by 11 piece of paper, the size page required under the rulemaking regulations. To provide this information in a user-friendly format, the department has posted an interactive GIS-based mapping resource on its homepage. It can be accessed at <http://www.state.tn.us/environment/wpc/>.

**Comment D-3.** *Regulatory programs tend to lag behind the newest science.*

**Response:** We understand this comment and agree that there can be delays in incorporation of the newest science into state and national criteria documents. However, we note in defense of the present system that many of the delays are designed to allow full public participation into goalsetting, which we see as a good and important activity.



**Comment D-4.** *Tennessee should continue to make progress in developing numeric lake criteria.*

**Response:** We agree. Specifically regarding nutrients, the department has developed a written plan for development of nutrient criteria. This document can be accessed from our webpage at <http://www.state.tn.us/environment/wpc/publications/NutrientCriteriaWorkplanRev.pdf>.

However, the commenter should be aware that implementation of this plan is contingent on the availability of resources.

**Comment D-5.** *Tennessee should standardize the units in the criteria tables.*

**Response:** The units in the criteria table are consistent with how data are reported from the laboratory. We prefer the tables as they are.

**Comment D-6.** *The formulas for calculating criteria cannot be understood by the public. Can we not just have a single number that does not have to be calculated?*

**Response:** The toxicity of certain substances such as metals or ammonia can be substantially altered by environmental conditions such as the pH, temperature, or the hardness of the water. For these substances, development of formulas is necessary to ensure that criteria accurately reflect scientific knowledge about the pollutants.

**Comment D-7.** *Why didn't the department add flow criteria for designated uses other than fish and aquatic life and recreation.*

**Response:** Low flows are less likely to interfere with uses other than fish and aquatic life or recreation. Furthermore, all streams are classified for fish and aquatic life and recreational uses.

**Comment D-8.** *The department needs to specify exactly how it intends to apply narrative criteria such as suspended solids under fish and quality life, or color under recreation.*

**Response:** We agree that the department needs a process for interpreting narrative criteria, but feel that the regulation is not the appropriate place for such detail. For certain substances or conditions such as habitat, biological integrity, and nutrients, we have developed companion guidance documents that provide

regional numeric translators of narrative criteria. (These documents can be accessed at our webpage.) This would be our preferred approach for color or suspended solids.

**Comment D-9.** *The regulation should limit the amount of assimilative capacity any one discharger can take up.*

**Response:** Such a policy, if appropriate for regulations, would be better placed in the permitting rule.

**Comment D-10.** *The regulation should specifically prohibit the filling of streams.*

**Response:** Such a prohibition would need to be in the statute. Otherwise, the regulation would be in conflict with the statute.

**Comment D-11.** *TDEC needs the ability to issue stop work orders in order to implement this regulation.*

**Response:** Changing the Water Quality Control Act would be necessary for this. (The Attorney General issued Opinion No. 01-105 stating this.) As the commenter may know, the General Assembly recently passed legislation proposed by the Governor giving TDEC stop work order authority over coal mining.

**Comment D-12.** *The new flow criteria should be deleted because flow is not a "quality" criterion. Removal of flow causes other criteria to be violated, which should be the mechanism for regulating it.*

**Response:** We do not agree. Certainly, if a stream is being used for boating and a water diversion or withdrawal causes it to go dry, then the recreational use is lost. The lack of water is the impairment, even though other criteria may also be violated.

Flow alteration is caused by activities that the department regulates in many instances. We consider having criteria for flow to be appropriate.

#### **E. SPECIFIC COMMENTS: 1200-4-3-.02, General Considerations**

**Comment E-1.** *In 1200-4-3-.02 (5), why was the word "protective" substituted for "stringent."*

**Response:** We think the word "protective" conveys the meaning of the text better than does the word "stringent," a word often considered to have a negative connotation. Additionally, the word stringent is often taken to mean lower, and in the case of some criteria, a lower number is bad (e.g., streams impacted by low pH).

**Comment E-2.** *In 1200-4-3-.02 (6), the words "when they become a stream" should be added to the end of the second sentence.*

**Response:** Because "stream" is not a defined term, we believe the current wording is clearer. One is not "downstream of wet weather conveyances" if still in one.

**Comment E-3.** *What is the difference between a wet weather conveyance and a ditch?*

**Response:** We think that most of the time, a ditch is a wet weather conveyance. However, the word "ditch" has no meaning in the regulation.

**Comment E-4.** *There is some awkward wording in the first sentence of 1200-4-3-.02 (7).*

**Response:** We agree and will make the following revision: "Where general water quality criteria are applied on a regional, ecoregional, or subecoregional basis, these criteria ..."

**Comment E-5.** *The commenter dislikes the description of wadable stream given in 1200-4-3-.02 (7). Additionally, it would be better placed in the definition section.*

**Response:** We like our definition of wadeable streams. A stream might be shallow one day and deep the next, so a depth requirement is not helpful. Under our definition, if the stream can be sampled using a one meter square or smaller kick net when the bottom of the net is in the sediment and the top is at or over the surface level, it is wadable. We agree that the proposed language would be better placed in the definitions section and will make this change.

**Comment E-6.** *Some streams are too small to be sampled with a one meter square net. This definition suggests that they are not wadeable.*

**Response:** The commenter is correct and we will make this revision.

**Comment E-7.** *In 1200-4-3-.02 (9), the paragraph should acknowledge that other appropriate methods may be used.*

**Response:** It may be that there are other methods for making site-specific criteria adjustments, however, EPA has only recognized the identified methods. As any recalculation or adjustment of toxic criteria must be approved by EPA, it would be misleading to suggest that methods not accepted by them would provide an approach likely to be successful.

**Comment E-8.** *In 1200-4-3-.02 (9), the paragraph should include the following statement: "The criteria shall be applied using the site-specific methodologies approved by EPA."*

**Response:** We prefer the paragraph as currently composed. The statement suggested by the commenter might be taken to mean that site-specific studies must be done before criteria can be applied. Additionally, we think it is understood that since EPA's approval is required for site-specific criteria studies, methods approved by EPA must be used.

**Comment E-9.** *The second sentence of 1200-4-3-.02(9)(a) appears to be an incomplete sentence.*

**Response:** We agree and will make this change.

**Comment E-10.** *In the last sentence of 1200-4-3-.02(9)(a), the word "can" should be changed to "shall." The department should accept any site-specific criterion that has been approved by the department and by EPA."*

**Response:** We agree, provided that nothing has changed in the time between the site-specific study approval and the permit application. We will make this change.

**Comment E-11.** *1200-4-3-.02(9)(b) should be deleted as it appears to be a commentary.*

**Response:** Paragraph b relates important information. The results of Water Effect Ratio studies can be incorporated into permits without a rule change. Other site-specific criteria study methods cannot.

**F. SPECIFIC COMMENTS: 1200-4-3-.03(1),  
Criteria for Water Uses, Domestic Water Supply**

**Comment F-1.** *The domestic water supply criteria do not have a single sample maximum criterion for E. coli. Why not?*

**Response:** In general, the geometric mean of multiple samples is considered a better measure of risk. Of course, in finished (tap) water, the coliform criterion is zero, so disinfection of raw water is necessary before finished water can meet the very stringent MCLs in the rules of the Division of Water Supply.

**G. SPECIFIC COMMENTS: 1200-4-3-.03(3),  
Criteria for Water Uses, Fish and Aquatic Life**

**Comment G-1.** *The dissolved oxygen criterion for subcoregion 73a should not be lowered to a less protective level.*

**Response:** In our view, criteria must be more than just protective- they must also be appropriate. The small streams and sloughs in this area along the Mississippi River function more as wetlands than streams. The best streams we can find consistently violate the existing dissolved oxygen criteria, for reasons unrelated to pollution.

In our view, these streams naturally have lower DO levels and the forms of aquatic life found in them have adapted to these conditions. We believe a lower criterion would be appropriate. However, as EPA has raised concerns about this revision, we will revise our proposal to reflect the DO criterion EPA previously approved for this region (average DO 5 mg/L, minimum DO level 4.0 mg/L) and will make appropriate use of the natural conditions clause in the regulation when assessing streams in this region.

**Comment G-2.** *The proposed dissolved oxygen criterion for subcoregion 73a refers to a "diverse biological community." The department should spell out what it means by this phrase.*

**Response:** The department is withdrawing the proposed 73a criterion. In general, when we refer to a diverse biological community, we mean one that meets the biological integrity goals under the fish and aquatic life designated use.

**Comment G-3.** *Tennessee's dissolved oxygen criterion should be raised to a minimum of 6.0 mg/L in areas not already set at that level or higher.*



**Response:** The present dissolved oxygen criterion of 5.0 mg/L is appropriately protective according to the literature. Additionally, Tennessee's promulgated criterion is more protective than the statewide level used in almost all our neighboring states (daily average of 5 mg/L, minimum 4.0).

**Comment G-4.** *In some lakes and reservoirs, pH levels fluctuate more than one unit naturally. Also, some healthy wetlands may violate the water quality criterion for pH.*

**Response:** The criteria are clear that water quality standards exceedences due to natural conditions are not pollution.

**Comment G-5.** *The state has not proposed criteria for silt, which is currently the most frequently cited pollutant impacting Tennessee waters.*

**Response:** The commenter is correct that we have not proposed a numeric criterion for silt under the fish and aquatic life protection provisions. We have found our narrative criterion for habitat to be the best tool for diagnosing stream impairment due to excessive silt.

**Comment G-6.** *The state has proposed narrative language for suspended solids in 1200-4-3-.03(3)(d) based on a comparison of test streams to reference streams. This is an improper basis and should be deleted.*

**Response:** The department's longstanding position is that narrative criteria, including those for silt, are most accurate when adjusted to account for regional differences in water quality. The amount of silt that might not cause a problem in a West Tennessee stream might cause a serious problem in the mountains of East Tennessee. We are also comfortable that properly selected reference streams represent an attainable goal. We believe the language as proposed is appropriate.

**Comment G-7.** *1200-4-3-.03(3)(d) should be clear that reference streams other than those in the division's database may be used for comparison. Methods other than the division's methods should be allowed.*

**Response:** The proposed language neither stipulates a comparison methodology nor a specific set of reference streams.

**Comment G-8.** *The temperature criteria in 1200-4-3-.03(3)(e) should include a statement that temperature discharge permits properly issued under Section 316(a) of the Clean Water Act comply with Tennessee's water quality standards.*

**Response:** We agree and will add this language.

**Comment G-9.** *Is the proposed ammonia formula used to calculate instream criteria or permit limits?*

**Response:** Clean water goals are always directed at waters classified for those specific uses. However, the commenter is correct that permit limits are also derived from the criteria, after consideration of the stream's assimilative capacity. In certain low flow conditions, dischargers may be required to meet criteria at the end-of-the-pipe.

**Comment G-10.** *The regulation should contain detailed information about how the ammonia criteria will be applied to dischargers.*

**Response:** We think that such information, to the extent it is needed, would be better placed in the permitting regulation or in an SOP.

**Comment G-11.** *The ammonia criteria appear to be based on a constant discharge. What criteria are to be used if intermittent flows or discharges are present?*

**Response:** As previously stated, the ammonia criterion establishes goals for the quality of streams. Discharge limits are developed to ensure that stream criteria are met and the development of permit requirements considers both the nature of the stream and the characteristics of the discharge.

**Comment G-12.** *The phrase "more than once every three years on the average" in the first sentence of the ammonia language appears to create a criterion almost impossible to apply as the division would have to wait at least six years to decide if the level had been violated.*

**Response:** The commenter is correct and we will delete this phrase.

**Comment G-13.** *The criteria for toxic substances may not be adequately protective for some listed species.*

**Response:** As stated previously, we are very dependant on EPA for guidance concerning the effects of toxic chemicals on aquatic life.

**Comment G-14.** *The proposed criterion for iron should not listed in the table for toxic substances. Iron is generally not toxic.*

**Response:** Iron is toxic to fish and aquatic life, according to EPA's 1976 criteria document (Red Book).

**Comment G-15.** *The department should consider making the criterion for iron narrative, rather than numeric.*

**Response:** We have not objection to this approach and will make this revision.

**Comment G-16.** *The department should not promulgate an iron criterion at this time, but should wait until EPA reconsiders the current recommendation.*

**Response:** Our field observations have confirmed that iron is a substance impacting a number of streams in Tennessee. For that reason, we will propose a narrative criterion. If the science is reevaluated and EPA publishes a new national criterion, we can update the criterion during a future triennial review.

**Comment G-17.** *In many areas of Tennessee, iron levels are naturally elevated. The criterion may be violated under natural conditions.*

**Response:** Tennessee's regulation already contains a provision which states that criteria violations due to natural conditions do not represent the condition of pollution.

**Comment G-18.** *The regulation should contain numeric criteria for nutrients rather than the current narrative one.*

**Response:** During the last triennial review, numeric nutrient criteria were strongly considered. In the end, the narrative criterion was considered to best provide the flexibility needed to properly assess streams, establish permit limits, and develop TMDLs.

**Comment G-19.** *The biological integrity criterion should be modified to add that in addition to physical alterations, removal of water is an activity that cannot impact aquatic communities.*

**Response:** We consider the removal of water to be a type of physical alteration. The new flow criterion in 1200-4-3-.03(n) makes it clear that flows cannot be altered to the extent that fish and aquatic life criteria are not longer met.

**Comment G-20.** *The biological integrity criterion should be modified to add additional methods beyond the rapid bioassessment protocols, as the language suggests that the wadeable streams procedure can be used on nonwadeable rivers and lakes.*

**Response:** We agree and will make this clarification.

**Comment G-21.** *The biological integrity criterion should be numeric rather than narrative.*

**Response:** During the last triennial review, the department proposed, then withdrew, a set of numerical criteria in favor of a position based on narrative criteria with regional numeric translators. We feel this approach has worked well.

**Comment G-22.** *The new flow criterion should be modified to require the maintenance of natural flow regimes and the habitats of the full range of species that might be expected to occur there.*

**Response:** We believe the simpler language proposed by the department will provide the flexibility needed to protect the important resource values of individual waters, whether or not the flow regime is "natural."

**Comment G-23.** *How would the new flow criterion be interpreted in intermittent streams or other streams that go dry from time to time.*

**Response:** The commenter is correct that many streams go dry from time to time due to natural conditions. When those streams would have enough flow to maintain aquatic life, the criteria would prevent them from being altered to the extent that they would no longer support that aquatic life.

**Comment G-24.** *The proposed new sentence in the habitat criteria should be deleted as it is a description of types of habitat loss rather than criteria language.*

**Response:** We believe the proposed language helps the reader understand the types of habitat alteration that are covered by the criterion.

**H. SPECIFIC COMMENTS: 1200-4-3-.03(4),  
Criteria for Water Uses, Recreation**

**Comment H-1.** *Tennessee needs a numeric turbidity criteria.*

**Response:** Our recreational turbidity criterion in 1200-4-3-.03(4)(d) can be applied numerically in certain circumstances if the test stream can be compared to the reference stream database. These numeric interpretations of the turbidity criterion could be used as the basis for TMDLs, for example.

**Comment H-2** *Total suspended solids do not impact recreational uses of streams. This should be deleted as a narrative criterion.*

**Response:** We do not agree and prefer the criterion as written. It is our view that objectionable levels of suspended solids directly interfere with recreation in streams.

**Comment H-3.** *Tennessee should do as other states have done, set the numeric turbidity criteria at a specific level over natural background.*

**Response:** We do not concede that we have proposed a less usable or less protective criterion. The one-size-fits-all approach to statewide criteria for non-toxicants is one that we consider to have significant disadvantages in goal setting.

**Comment H-4.** *Tennessee's color criterion should be numeric and based on reference conditions. The "no objectionable color" standard is overly broad.*

**Response:** Although we would prefer a numeric color criterion, we do not have enough color data from reference streams to propose regional goals at this time.

**Comment H-5.** *In the existing regulation, the E. coli criterion for any Tier 2 water is set at 487. The new proposal would change the characteristics for high quality waters. If some of these waters are no longer Tennessee Exceptional Waters under the revisions, the E. coli criterion would be raised to 941. What is Tennessee's basis for being comfortable with the lowering the criteria in these waters.*

**Response:** The commenter is correct that under the proposed new characteristics for Tennessee Exceptional Waters, some waters that might have been considered Tier 2 under the previous rule, will not longer be captured, thus changing the E. coli criterion for those streams. It is also true that the changes

will cause other streams, not previously captured as Tier 2 under the old rule, to now be Exceptional Tennessee Waters under the new rule. There will clearly be some exchange of streams between the old and new categories.

The main difference between the old and new characteristics is in the area of biological integrity and presence of listed species. Thus, any changes will be made more on the basis of the fish and aquatic life use, rather than recreational uses. The 941 criterion for streams is clearly within the range EPA considers acceptable for recreational use.

**Comment H-6.** *EPA has published a new national criterion for mercury. Tennessee should adopt this criterion.*

**Response:** The commenter is correct that EPA's new mercury criterion recommendation is based on a level of 0.3 parts per million mercury in fish tissue. However, because of the difficulty of implementing a water criterion based on fish tissue, EPA intends to also publish implementation guidance. EPA has told states that they may wait until the implementation guidance is available before adopting the new mercury criterion.

The department prefers this approach so that we do not create a situation where we have a new criterion on the books that we are uncertain how to implement.

**Comment H-7.** *Tennessee lists 1,1-Dichloroethylene as a carcinogen. EPA does not consider it to be.*

**Response:** We agree and will make this change.

**Comment H-8.** *Tennessee does not list 1,3-Dichloropropene as a carcinogen. EPA considers it to be.*

**Response:** We agree and will make this change.

**Comment H-9.** *Tennessee lists lindane as a carcinogen. EPA does not consider it to be.*

**Response:** We agree and will make this change.

**Comment H-10.** *The chronic criterion for lindane should not be changed from the previous level.*



**Response:** This is a change suggested by EPA. We are dependant on EPA's recommendation regarding lindane as we have no independent expertise or research on this subject.

**Comment H-11.** *EPA has dropped the national criterion for each PCB aroclor in favor of the criterion for total PCBs.*

**Response:** We agree and will make this change.

**Comment H-12.** *The narrative nutrient criterion in 1200-4-3-.03(4)(h) should be clearer that other types of waterbodies are protected in addition to streams.*

**Response:** We agree and will change the word "stream" to "waterbodies."

**Comment H-13.** *Does Tennessee have a legal basis for establishing a nutrient response criterion for their portion of Guntersville Reservoir with a compliance point in Alabama?*

**Response:** Our efforts on Guntersville were to match Alabama's existing chlorophyll a criterion on this shared waterbody so that the entire reservoir would have the same clean water goal. However, since this legal issue has been raised, we will delete this proposal. Guntersville Reservoir will still be covered under the narrative nutrient criterion in 1200-4-3-.03(4)(h).

**Comment H-14.** *Tennessee has proposed a nutrient response criterion for Guntersville and Pickwick which is based on average levels over a growing season. There should also be a daily max level set of chlorophyll a.*

**Response:** Chlorophyll a is not a toxic substance. Elevated biomass in lakes affects recreational use over time. We believe that a criterion based on average levels provides the best way to measure cumulative impacts.

(Note: the division is aware that some bluegreen algae can be toxic to livestock and that the marine algae *Pfiesteria* has created a water contact problem in certain estuary areas. However, there is no evidence that any Tennessee lakes have a problem with those types of algae, especially *Pfiesteria*.)

**Comment H-15.** *Tennessee's calculations for issuing fishing advisories are based on a default body weight of 75 kg. This is not adequately protective of children.*

**Response:** Tennessee issues two levels of fishing advisories. The one at the lower threshold, commonly called a precautionary advisory, is specifically designed to protect sensitive sub-populations, such as children.

Regarding non-carcinogens such as mercury, the process for issuing fishing advisories is based on Action Levels published by the U.S. Food and Drug Administration (FDA). Although not specified in the regulation, traditionally the department considered advisories for sensitive groups, such as children, to be appropriate at one half the FDA level. We will add language specifying this practice, but also allowing the department use other national criteria as deemed appropriate.

#### **I. SPECIFIC COMMENTS: 1200-4-3-.04, Definitions**

**Comment I-1.** *The definitions should be in alphabetical order.*

**Response:** We agree and will make this change.

**Comment I-2.** *The definition of a mixing zone should be modified so that it requires NPDES permits to clearly identify the mixing zones for each discharger.*

**Response:** We do not consider these rules to be a proper place to establish permitting requirements. This could be considered in future revisions to the permitting rules.

**Comment I-3.** *The definition of degradation should be modified so that it reads as follows: "Degradation – The alteration of properties of water by the addition of pollutants or removal of water or alteration of habitat, resulting in a condition of pollution and the lowering of water quality such that the ability to meet current goals is affected."*

**Response:** This would be inconsistent with federal requirements. The commenter has suggested changing the definition so that a water quality change is not degradation unless uses are affected. That is the proper definition of the condition of pollution rather than degradation, which is any lowering of water quality, unless *de minimis*.

**Comment I-4.** *The definition of degradation should not include a statement that says that any addition of chemicals represents degradation. Chemicals added to the water might improve water quality, for example, if lime was added to correct pH.*

**Response:** Adding lime to a stream would require a permit. During the permitting process, each addition of pollutants is evaluated. Those that do not represent degradation would not have to go through a full antidegradation review.

**Comment I-5.** *The cap on any individual application of de minimis is 5 percent. This cap should not be set at this level, as a higher use of assimilative capacity might also be de minimis.*

**Response:** The regulation already has 5 percent established as the upper limit for each individual application of the *de minimis* provision. We have not proposed to raise this threshold and would need a science basis to do so. The commenter has not suggested a basis for this change.

**Comment I-6.** *The cap on any individual application of de minimis should be set at 20 percent.*

**Response:** We consider 20 percent too great a loss of assimilative capacity to be considered insignificant.

**Comment I-7.** *If an alteration only changes the water quality for something covered by a narrative criterion, that alteration should be considered de minimis, as long as uses are maintained.*

**Response:** The definition of degradation applies to all pollutants, not just the ones that we have numeric criteria for.

**Comment I-8.** *The definition of degradation contains a provision for de minimus impacts. This is objectionable as no amount of degradation should be allowed in Tennessee's high quality waters.*

**Response:** The concept of *de minimus* degradation is needed for those occasions in which the amount of additional loading of a substance, the loss of habitat, or a water withdrawal is so small that it is more theoretical, rather than measurable degradation.

**Comment I-9.** *Any additional degradation above the ten percent cumulative cap should never be considered de minimis.*

**Response:** While we generally agree, we feel that there might be occasions in which a very small additional amount of degradation above the ten percent cap might be justified as *de minimis*.

**Comment I-10.** *The need to maintain some flexibility on the cumulative cap on multiple applications of de minimis is reasonable. However, there should be a cap on this to avoid the appearance that this provision could be used to allocate a significant amount of the assimilative capacity of a stream without justification that it is the public's interest.*

**Response:** The proposed language requires that any additional degradation be "insignificant." We consider this to be sufficiently restrictive.

**Comment I-11.** *Regarding the provisions dealing with water withdrawals in the definition of de minimis, the 5 percent cap on individual withdrawals should be based on average withdrawal rates. Also, a greater than 5 percent withdrawal should be treated as de minimis if the water is returned.*

**Response:** We believe that the *de minimis* cap should be based on the maximum withdrawal rates. A 5 percent average might be accomplished by withdrawing considerably more than 5 percent for some period of time, then balancing it with lower rates. Also, the department must make the determination based on what is being authorized, which is the maximum.

Regarding withdrawals that are returned to the stream, we believe that the current definition already gives us the flexibility to consider this. However, we note that in some streams, there may be some distance between a withdrawal point and the return point. In this dewatered section of stream, the effect would have to be considered and might not be *de minimis*.

**Comment I-12.** *The definition of de minimis should specify that in addition to in-system mitigation, out-of-system mitigation or the purchase of mitigation credits can also represent de minimis conditions.*

**Response:** The department's position and that of recent court decisions is that out-of-system mitigation or the purchase of mitigation credits do not render an activity *de minimis*. Only in-system mitigation addresses the impacts to the waters where the degradation is being authorized.

**Comment I-13.** *The inflexible definition of de minimis might prevent the division from authorizing watershed trading.*

**Response:** We do not agree that watershed trading, where appropriate, would be impeded in any way by the *de minimis* provision. Trading can only be authorized in those situations where the net effect to water quality would be a maintenance or improvement in water quality for a specific pollutant, i.e. also must be in-system.

**Comment I-14.** *The antidegradation provisions at each level should specifically authorize pollutant trading.*

**Response:** Trading can already be authorized in those situations where the net effect to water quality would be a maintenance or improvement in water quality for a specific pollutant. Guidance on trading would be better placed in either the permitting guidance or regulations.

**Comment I-15.** *Who is the decider concerning what is a de minimis level of degradation?*

**Response:** The department makes a determination regarding *de minimis* at the time a request for authorization for an activity is received. Activities ruled to be *de minimis* do not go through a full antidegradation review. Like any other permitting action, *de minimis* calls can be appealed.

**Comment I-16.** *The department should specify the length of time that an activity is considered temporary. Six months is suggested.*

**Response:** We think that the length of time an effect might be considered temporary depends on the activity and the nature of the stream. In some streams, six months might be much too long.

**Comment I-17.** *The rule should specify that the department's basis for a ruling of de minimis should be available for public review and comment. Additionally, citizens should have the right to appeal such decisions.*

**Response:** We agree that citizens have these rights, but do not think that the definition of *de minimis* needs to reiterate them, since they are already found in statute.

**J. SPECIFIC COMMENTS: 1200-4-3-.05, Interpretation of Criteria**

**Comment J-1.** *Since Tennessee does not recognize mixing zones, 1200-4-3-.05(2) should contain no reference to them.*

**Response:** The commenter is correct the permits are usually written to require instantaneous mixing. However, the concept of mixing zones is a recognized part of permitting strategy.

**Comment J-2.** *Since all the conditions listed in 1200-4-3-.05(2) are things that cannot be allowed in mixing zones, shouldn't "or" be used in the last line rather than "and?"*

**Response:** The commenter is correct and we will make this revision.

**Comment J-3.** *Biological data collected following rain events or during periods of dryness should be treated as pathogen data are under 1200-4-3-.05(5).*

**Response:** Part of the logic for the rain event pathogen provision is that people are unlikely to be recreating in streams during storms, thus risk is less. However, elevated rain event pathogen results are still violations of the water quality criterion.

Our biologists are also unlikely to be sampling during storm events. Regarding periods of dryness, our biological standard operating procedure (SOP) requires that sampling be done when streams are flowing. We believe that we already have flexibility to consider natural conditions in interpretation of our biological integrity criterion.

**Comment J-4.** *In 1200-4-3-.05 (4), do criteria apply to unregulated streams?*

**Response:** Yes. However, at flows less than the 7-day average, 10-year recurrence low flow interval, criteria may be exceeded until flows are restored, if discharges are occurring at permit limits that have been set based on the higher flow. This 10 year event is a rare occurrence.

**Comment J-5.** *1200-4-3-.05 (4) should refer to dammed and undammed streams, rather than regulated and unregulated.*

**Response:** We are aware of at least one stream where the regulation of flow is provided by something other than a dam (pump station). We prefer this passage as written.



**Comment J-6.** *TDEC has proposed adding the word "generally" in the first sentence of 1200-4-3-.05 (4). This should be deleted.*

**Response:** The word generally is needed to convey the fact that some narrative fish and aquatic life criteria may properly have a different flow basis than the 7Q10 flow.

**Comment J-7.** *In 1200-4-3-.05(8), the table is called "Required Detection Levels." Aren't these more properly described as quantification levels?*

**Response:** We agree that a change to the title of this table is needed, but believe that it would more properly be labeled as "Required Method Detection Levels." We will also add a note that says that approved EPA methods should be used.

**Comment J-8.** *Some of the general water quality criteria are set lower than the detection levels in 1200-4-3-.05(8). Permittees should not be required to meet permit limits set below detection levels.*

**Response:** Most permit limits are not set at the criteria level, since limits are based on additional factors such as ambient stream flow. However, where permit limits are below current detection levels, compliance with permit conditions is acknowledged with a result of "not-detected" at the appropriate detection level.

#### **K. SPECIFIC COMMENTS: 1200-4-3-.06, Tennessee Antidegradation Statement**

**Comment K-1.** *In moving things around, Tennessee seems to have lost some of the elements of its previous umbrella statement of purpose for the antidegradation policy.*

**Response:** We agree and will make this change in 1200-4-3-.06(1).

**Comment K-2.** *1200-4-3-.06(1) should be changed to say that nonpoint sources exempt from permit requirements must utilize cost-effective and reasonable BMPs.*

**Response:** This language would imply an authority not given to us by the Tennessee Water Quality Control Act.

**Comment K-3.** *1200-4-3-.06(1) suggests that the state must make a determination of social and economic need when authorizing degradation in water other than Exceptional Tennessee Waters. This should be clarified to indicate that such a determination is restricted to Exceptional Tennessee Waters.*

**Response:** The proposed language in 1200-4-3-.06 (1) is accurate. Where water quality exceeds the level needed to maintain uses, the state must make a determination that the change in water quality is in the public interest. The suggested change would likely be disapproved by EPA.

**Comment K-4.** *1200-4-3-.06(1) should be changed to say that 316(a) thermal discharge permits are consistent with the antidegradation policy.*

**Response:** The commenter is correct that properly issued thermal discharge permits do not run afoul of the antidegradation policy. We will make this addition.

**Comment K-5.** *The categories of streams that Tennessee has proposed calling "Unavailable Waters" and "Available Waters" should be combined and called "Water Quality Limited Streams."*

**Response:** The change suggested by the commenter would require a change from the parameter-by-parameter approach established in 2003. Additionally, the change proposed by the commenter would dictate a "no degradation" requirement for all these streams, as degradation cannot be allowed in water quality limited streams.

**Comment K-6.** *For the category of streams that Tennessee has proposed calling "Available Waters," the regulation should contain a detailed list of factors to be considered by the division prior to authorizing degradation of these waters. (The commenter provided a detailed list of these considerations to be added.)*

**Response:** We believe that the antidegradation policy should have a detailed implementation procedure, but believe that level of detail is best placed into an SOP document rather than the regulation.

**Comment K-7.** *The list of potential alternatives for water withdrawals should include stream impoundment.*

**Response:** The list of potential alternatives in the regulation is designed to provide the applicant some sense of the types of potentially less-degrading options that they should consider during their required alternatives analysis. The applicant would be free to consider other options in addition to the ones provided.

**Comment K-8.** *The list of potential alternatives for water withdrawals includes pricing structures that encourage water conservation. This is beyond TDEC's authority to influence.*

**Response:** The nexus to the department's water-based authority is provided by the fact that measures that minimize the amount of withdrawal needed, such as pricing structures, among others, are part of showing the necessity of the activity.

**Comment K-9.** *The phrase "or other treatment alternatives" should be added to the first sentence in 1200-4-3-.06(3)(a)(1.).*

**Response:** We agree and will make this revision.

**Comment K-10.** *Paragraph 1200-4-3-.06(3)(b) contains no mention of intergovernmental coordination. Reference to this important process should be added.*

**Response:** We agree and will make this addition.

**Comment K-11.** *The proposed category of Exceptional Tennessee Waters should be called "High Quality Waters" instead.*

**Response:** The suggested change would reestablish the type confusion we are trying to avoid. Under the federal regulation, our "Available Waters" category is also considered "high quality."

**Comment K-12.** *The Exceptional Tennessee Waters provisions should only be implemented after the applicant has provided water quality data.*

**Response:** The proposed characteristics for Exceptional Tennessee Waters are not based on the need to collect significant amounts of water quality data.

**Comment K-13.** *Can a stream that is “available” for one parameter be “unavailable” for another? Can Exceptional Tennessee Waters be “unavailable” for one or more parameters?*

**Response:** Yes. Status as an Exceptional Tennessee Water does not preclude the possibility that the stream may be at or below a water quality standard for one or more constituents. The classic example of this is the Ocoee River. It is a nationally important recreational resource, yet it violates water quality standards for several parameters.

**Comment K-14.** *What is the difference between being “at” or “below” a water quality standard? What is meant by water quality “better than the applicable criterion.”*

**Response:** A stream with a dissolved oxygen level of 5 mg/L is at the water quality standard. A stream with a DO of 4.9 mg/L is below the standard. A stream that runs at 7.0 mg/L DO is better than the applicable criterion.

**Comment K-15.** *The 1200-4-3-.06(4)(c), the previous regulation cited “ecologically significant populations” of listed species. This wording is preferable to the proposed language which refers to “documented populations.”*

**Response:** We believe the proposed language is easier to interpret.

**Comment K-16.** *How will the length or extent of Exceptional Tennessee Waters be determined?*

**Response:** Where the status is based on a property line, such as a state or national park, the extent within the park would be the basis of the determination. Where the status is based on listed species or outstanding biological integrity, the extent is more difficult to pinpoint. We will use our knowledge of water quality, land use, and other factors to make these determinations.

**Comment K-17.** *Streams should not be categorized as high quality unless all water quality standards are being met.*

**Response:** We believe the antidegradation policy is designed to protect the full range of the high quality aspects of a stream, not just the chemistry of water quality. If we implemented the commenter’s suggestion, Reelfoot Lake, the Ocoee River, and many other waterbodies would cease to be high quality waters. We would not consider this change to be appropriate and could not recommend

it. Further, we do not believe that such a policy would be appropriately approved by EPA.

**Comment K-18.** *1200-4-3-.06(4)(c) refers to species proposed for listing as threatened or endangered. Only species actually listed should be included.*

**Response:** We agree and will make the suggested change.

**Comment K-19.** *There should be a mechanism for removing streams from the list of Exceptional Tennessee Waters if the information upon which the listing is based is found to be incorrect.*

**Response:** The listing of Exceptional Tennessee Waters is not part of the regulation. Streams can easily be added or removed based on new information.

**Comment K-20.** *1200-4-3-.06(4)(c) should be revised to make it clear that populations of listed species classified as experimental are not included in this provision. One such experimental population is in the Holston River.*

**Response:** We agree and will make the suggested change. However, the commenter should note that the Holston River from Forgey Creek to Surgoinsville Creek has already been identified as a high quality stream due to the presence of the spotfin chub.

**Comment K-21.** *The Tennessee Macroinvertebrate Index score needed to promote a stream to Exceptional Tennessee Stream status is proposed at 40. We believe that 38 should be used instead.*

**Response:** In looking at our databases of biological data, there were many streams scoring a 38 that we thought were good streams, but not exceptional ones. We feel that 40 is the appropriate level for this category.

**Comment K-22.** *If the Tennessee Macroinvertebrate Index is going to be used to identify streams with exceptional biological integrity, the index should be promulgated as regulation.*

**Response:** We do not agree. The index is already identified under the narrative biological integrity criterion as an appropriate interpretation tool.

**Comment K-23.** *A fish IBI could be added to the characteristics of Exceptional Tennessee Waters.*

**Response:** It could, but as the agency given the responsibility to make this determination, we are comfortable using benthic macroinvertebrates as the primary basis for documenting biological integrity.

**Comment K-24.** *Scenic and recreational values are important components of what makes a stream a high quality resource. These aspects are under-represented by the characteristics of Exceptional Tennessee Waters as proposed.*

**Response:** We agree and will add the following additional characteristic as 1200-4-3-.06(4)(g):

(g). Other waters with outstanding scenic, ecological, or recreational values as determined by the department.

**Comment K-25.** *If the applicant has done a NEPA review or other environmental assessment, that should satisfy the information-submittal requirements under the antidegradation policy.*

**Response:** Perhaps, but only if the information submitted by the applicant is sufficient in order for the state to make a determination that degradation is socially or economically necessary. Failure to provide the necessary information could hold up projects, as the state must have a proper basis for making these determinations.

**Comment K-26.** *The rule should clearly state that the department's evaluation of Exceptional Tennessee Waters can be appealed by citizens.*

**Response:** The right of citizens to appeal permitting actions is already found in statute.

**Comment K-27.** *The rule should clearly state that public transportation projects are presumed to be justified on the basis of social or economic necessity.*

**Response:** We agree that public transportation projects may have already gone through a process to establish that the activity is in the public interest. Because this documentation is so readily available and could easily be submitted, we



could not support a categorical exemption and do not believe that one would be approved as consistent with federal regulations.

**Comment K-28.** *The phrase "or other treatment alternatives" should be added to the first second sentence in 1200-4-3-.06(4)(j).*

**Response:** We agree and will make this revision.

**Comment K-29.** *In 1200-4-3-.06(4)(g), it is not clear who is given the responsibility to perform an alternatives analysis for reissuances of previously authorized discharge permits.*

**Response:** We agree and will make this paragraph clearer that the applicant must perform the required alternatives analysis.

**Comment K-30.** *Under the provisions for ONRWs, the statement that new discharges, expansions of existing discharges, or mixing zones can not be authorized, unless "such activity will not cause degradation" should be removed. These activities are prohibited.*

**Response:** We understand this comment, but believe degradation is the ultimate test of what can be authorized in ONRWs. This language was already approved by EPA is being consistent with their rules. We will add the word "measurable" to the quoted phrase.

**Comment K-31.** *In the list of Outstanding National Resource Waters, the description should be clarified so that it is clear that only the portion of West Prong Little Pigeon River upstream of Gatlinburg is included.*

**Response:** We agree with the commenter that the present language may cause the reader to incorrectly think that the section of the river between Gatlinburg and Pigeon Forge is included in the designation. We will make this revision.

**L. SPECIFIC COMMENTS: 1200-4-4, Use Classifications  
for Surface Waters**

**Comment L-1.** *The domestic water supply designation of Sulphur Fork Creek should be revised to reflect the relocation of the wastewater discharge point from the city of Springfield. The designation should be removed at Springfield's current discharge point. The domestic water supply classification can be added to the section of the stream where Springfield used to discharge.*

**Response:** We can certainly add the domestic water supply classification to the section of Sulphur Fork Creek where Springfield previously discharged. However, EPA has told us that the development of a Use Attainability Analysis (UAA) must be completed and the results approved before the removal of classified uses can take place. As a UAA has not been done on Sulphur Fork Creek, we cannot go forward with this revision without provoking an EPA disapproval action.

**Comment L-2.** *Hurricane Creek, a tributary to the Tennessee River in Stewart County, is a trout stream and should be changed in 1200-4-4-.04.*

**Response:** We agree and will make this revision.

**Comment L-3.** *Barrett Branch and Service Branch, two tributaries to the Bald River, are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-4.** *McNabb Creek, Laurel Branch, and Service Tree Branch, three tributaries to the North River, are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-5.** *Panther Branch, a tributary to the Tellico River, is a naturally reproducing trout stream and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make this revision.

**Comment L-6.** *Crowder Branch, Mill Branch, and Flint Branch, three tributaries to Double Camp Creek, are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-7.** *Indian Valley Branch, a tributary to North Fork Citico Creek, is a naturally reproducing trout stream and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make this revision.

**Comment L-8.** *Panther Creek, Mill Creek and Rowans Branch, three tributaries to the Abrahms Creek, are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-9.** *Rabbit Creek and its two tributaries, Hannah Branch and Peckerwood Branch, are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-10.** *Bower Creek and Ekanneetlee Branch, two tributaries to Forge Creek, are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-11.** *Shop Creek and Tabcat Creek, two tributaries to the Little Tennessee River, are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-12.** *Bible Creek, a tributary to Parson Branch, is a naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make this revision.

**Comment L-13.** *All the tributaries to the Little River within the Great Smoky Mountains National Park are naturally reproducing trout streams and should be changed in 1200-4-4-.08.*

**Response:** We agree and will make these revisions.

**Comment L-14.** *Coal Creek, a tributary to the Clinch River, is a trout stream and should be changed in 1200-4-4-.09.*

**Response:** We agree and will make this revision.

**Comment L-15.** *All the tributaries to the West Prong Little Pigeon River within the Great Smoky Mountains National Park are naturally reproducing trout streams and should be changed in 1200-4-4-.09.*

**Response:** We agree and will make these revisions.

**Comment L-16.** *Dunn Creek within the Great Smoky Mountains National Park is a naturally reproducing trout stream and should be changed in 1200-4-4-.09.*

**Response:** We agree and will make this revision.

**Comment L-17.** *All the tributaries to the Little Pigeon River within the Great Smoky Mountains National Park are naturally reproducing trout streams and should be changed in 1200-4-4-.09.*

**Response:** We agree and will make these revisions.

**Comment L-18.** *All the tributaries to South Indian Creek within the Cherokee National Forest above Erwin are naturally reproducing trout streams (1200-4-4-.10).*

**Response:** We agree and will make these revisions.

**Comment L-19.** *The lower section of Sinking Creek, a tributary to the Pigeon River is a naturally reproducing trout stream and should be changed in 1200-4-4-.10.*

**Response:** We agree and will make this revision.

**Comment L-20.** *Indian Camp Creek, a tributary to Cosby Creek is a naturally reproducing trout stream and should be changed in 1200-4-4-.10.*

**Response:** We agree and will make this revision.

**Comment L-21.** *Bailey Branch, a tributary to Dry Fork Creek, is a trout stream and should be changed in 1200-4-4-.10.*

**Response:** We agree and will make this revision.

**Comment L-22.** *Bear Branch, a tributary to Gulf Fork Big Creek, is a trout stream and should be changed in 1200-4-4-.10.*

**Response:** We agree and will make this revision.

**Comment L-23.** *Moss Camp Creek and Deep Gap Creek, tributaries to Gulf Fork Big Creek, are naturally reproducing trout streams and should be changed in 1200-4-4-.10.*

**Response:** We agree and will make these revisions.

**Comment L-24.** *The Watauga River from mile 25.8 to the North Carolina state line is a naturally reproducing trout stream and should be changed in 1200-4-4-.11.*

**Response:** We agree and will make this revision.

**Comment L-25.** *Simerly Creek, Shell Creek, Cove Creek, and Buck Creek, tributaries to the Doe River, are naturally reproducing trout streams and should be changed in 1200-4-4-.11.*

**Response:** We agree and will make these revisions.

**Comment L-26.** *Mill Creek, a tributary to Roan Creek, is a naturally reproducing trout stream and should be changed in 1200-4-4-.11.*

**Response:** We agree and will make this revision.

**Comment L-27.** *Big Dry Run Creek, a tributary to Watauga River, is a naturally reproducing trout stream and should be changed in 1200-4-4-.11.*

**Response:** We agree and will make this revision.

**Comment L-28.** *Big Creek and Sulphur Springs Branch, tributaries to South Fork Holston River, are naturally reproducing trout streams and should be changed in 1200-4-4-.11.*

**Response:** We agree and will make these revisions.

**Comment L-29.** *Stillhouse Branch, Parks Branch, and Johnson Branch, tributaries to Beaverdam Creek, are naturally reproducing trout streams and should be changed in 1200-4-4-.11.*

**Response:** We agree and will make these revisions.

**Comment L-30.** *Dry Branch, a tributary to Gentry Creek, is a naturally reproducing trout stream and should be changed in 1200-4-4-.11.*

**Response:** We agree and will make this revision.

**Comment L-31.** *Smith Fork Creek, a tributary to Caney Fork River, is a trout stream from its mouth to mile 3.0. This should be changed in 1200-4-4-.13.*

**Response:** We agree and will make this revision.

**Comment L-32.** *Barren Fork River, a tributary to Collins River, is a trout stream from mile 4.5 to its origin. This should be changed in 1200-4-4-.13.*

**Response:** We agree and will make this revision.

**Comment L-33.** *Wolf River, a tributary to the Obey River, is a trout stream from the Fentress County Line to its origin. This should be changed in 1200-4-4-.13.*

**Response:** We agree and will make this revision.